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IN

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WITH 9 ILLUSTRATIONS.

RAM SINGH DEL MAYO SCHOOL OF ART LAHORE

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W. GRIGGS,

HANOVER STREET, PECKHAM,

LONDON, S.E.

The Journal of Indian Art and Industry.

IVORY CARVING IN THE NORTH-WEST PROVINCES AND OUDH.

By L. M. STUBBS, Esq., I.C.S,

TO commence with an apology is to disarm criticism, though to follow this with an excuse is not calculated to create sympathy. At the same time, though the word ivory seems in many ways to possess peculiarly Indian associations, and ivory carving brings to memory Colonel Newcome's chessmen, this report is circumscribed by the geographical limits of the title.

The South Kensington collection possesses some most beautiful specimens of ivory work of various kinds, ranging from chessmen to inlaid furniture, but the closest survey will not reveal a single product of the North-Western Provinces, though the chessmen and carved divinities come from such widely distant places as Berhampur and Amritsar and the inlay work from Bombay and Vizagapatam.

The British Museum is no more productive, the art hand-books ignore these provinces, and, in short, anything in the way of extraneous information is very conspicuous by its absence. This is the more extraordinary when one comes to consider that within the scope of this monograph come such ancient seats of civilization as Agra, Lucknow and Benares.

The ivory carving of Northern India is sufficiently well known, probably more so in England than in India; but the places of sale for this work are, if not perhaps always the places of manufacture, at any rate ordinarily considered such. Amritsar, Delhi, Murshidabad and Berhampur are perhaps the best known places for the purchase of ivory carving, and very beautiful work may be obtained there; the specimens of Berhampur work in the South Kensington Museum being probably the highest degree of perfection to which the art has attained,—two pieces in particular, a set of chessmen and a group of Hindu divinities.

Indian ivory, says the *Encyclopædia Britannica*, is not so well adapted for carving and turning purposes as is African or even the fossil Siberian, for various technical reasons into which it is not worth while to enter; but at the same time these specimens show to what a height the art might reach were it to receive due encouragement and a moderate amount of education; the former being much the more important condition, as anyone who has seen anything of the progress of Indian arts in various departments can readily understand.

Turning to the inquiry in these provinces, anyone who has had anything to do with a monograph of this kind will appreciate the difficulties of acquiring information when the subject is not a familiar one and such information as ought to be obtained is not ready to hand. Owing to the instructions received from Government the ordinary course was not followed; no circular with questions was sent out, and only likely districts were communicated with. The result of such inquiries may be imagined, and from district after district the same answer was received, most discouraging in its curt finality. The cause of this is, however, easily discoverable: the Deputy Collector or Tahsíldár found it difficult to connect the two ideas of the monograph and the ivory, and in many cases discovered the wrong word in the dictionary. However, the net result of such inquiries at the beginning was the conclusion that ivory carving was not an industry extensively followed in the North-Western Provinces, and this was not shaken by subsequent investigation.

This plan having been found unprofitable, personal inquiries yielded rather more result; but here too it was necessary to face a certain amount of difficulty. Such ivory workers as there are, are not men of means nor intelligence; and they are convinced, despite assurances, that no good can come of such paternal Government. Moreover, as will be seen from what follows, with the best will in the world they could tell but little since there is so little to tell.

This being so, it follows that such information as is contained in this paper is mainly derived from personal inquiries: and it would be as well to begin by saying that though reluctantly compelled to differ from so many Collectors and Deputy Commissioners, I am still of the opinion that there is ivory carving in these provinces, and that it is capable of development.

Furthermore, in the teeth of denials, it is difficult to say definitely that the art or industry flourishes in any given place; but it is my opinion, submitted with due deference, that the facts I have elicited are typical, and that to a limited extent, the art of ivory carving is practised and may be discovered in the bazár of every considerable town in the provinces, and that in places where it does not exist it could easily be created and fostered.

In some towns—Lucknow certainly, and I am inclined to think Benares and Agra—one can say more than this; and there are skilled workmen with definite traditions and real capabilities only limited by the paucity of demand, and kept in obscurity because the market for the higher class of their wares is foreign and, as a rule, reached through the middleman; that is to say, they are better than they themselves know and lose what chances they might have through lack of ambition and an ignorance of that glory of civilization—self-advertisement.

If, then, we may take Cawnpore as a typical instance of a place where ivory carving is followed to an extent created by the ordinary demand, that extent will be found to be very limited indeed. In the Cawnpore bazár there are two or three small shopkeepers who earn a presumably precarious livelihood by the manufacture of bone instruments for the pen-boxes of the clerk or for the toilette boxes of the Hindu lady. (*Kalamdans* and *surmadanis*, together with the small pencils for the application of *surma*). They also make such small articles as paper-knives, combs, chessmen, and various articles in the ivory or bone fretwork which is so easily obtainable.

These men, as I have said, are merely bazár workers with no ambition beyond the earning of the necessary 4 annas a day, and as a rule, do not work in ivory unless they have a definite order to justify the outlay. The ordinary purchaser is quite content with his articles if they are made of bone, and in Cawnpore, as a matter of fact, I was told that the only customers for ivory work are the European residents. In proof of this I was shown a billiard ball and a chess pawn, neither in any way strikingly original in conception or execution, as may be imagined from the nature of the subject, the latter being only the most conventional form of an object which presents always—and in other instances shows—very great possibilities. In spite, therefore, of professions of ability to execute any commissions that might be given, judging from the specimens produced, I gathered that the performance would fall short of the promise. The bone articles were of the usual kind, and such as are easily obtainable in any bazár.

I was informed that there was no regular supply of ivory as there was no regular demand, but that it might be obtained in the bazár with a little difficulty at prices varying from 3 to 7 rupees a seer. As to original sources of supply, my informant was exceedingly vague, but seemed to regard the Commissariat Office as being a likely finding place. It goes without saying that these people have no stock and no ivory in the raw; their usual trade is in bone articles, but they are prepared to work in ivory if they are supplied with an order, and would prefer to be supplied also with the material. They could not give me any information as to the places where I should be most likely to find a flourishing trade in ivory, but grasped at Lucknow as being a likely enough suggestion. As I have said, I take Cawnpore to be a typical instance: no stock, moderate skill, but infinite willingness to satisfy any requirements. Not much to go upon, but still the indispensable foundations of an industry, even if only the bare necessaries.

As to the origin and history of such art as there was, I could gather no information at all. My informant's father and grandfather had done this work; had always done it, since the memory of man. There were no models, no drawings; such things as were made, were made so because they agreed with a traditional pattern stored in the head of the maker; they had always been made so, how should they be made otherwise? The men I interviewed were Mussalmans, but the craft is apparently permissible to the Hindu; or my informant was ignorant of any prohibitive reason, though the inconvenience of bovine sanctity would necessarily limit the scope of their endeavours in bone.

Turning to Lucknow, I received through the Director of Land Records a list of articles made in ivory by people in Lucknow; small articles, for which there should be an immediate and moderately constant demand. The following is the list:—Combs, small toys, requisites for *kalamdans*, articles for applying *surma*, &c.; chessmen, card-cases, small models of buildings such as the Taj, paper-knives, paper-weights, handles for sticks, &c.; small boxes, and scissors. I interviewed the man who made these things, and the results of the interview seem to be really all that can be described as worth knowing about the industry in our provinces. The man was, as usual, only a small dealer with no stock; his chief boast being that he was the Government contractor for the supply of instruments for vaccination. He assured me that his entire stock consisted of a box a foot square containing small articles in bone and ivory, of which the most elaborate was a walking-stick handle. This was priced at ₨15, and was a realistic if somewhat archaic representation of a tiger devouring a black buck. This was distinctly the highest flight in art which I had seen and really possessed some merit. The rest of the stock in trade were the ordinary things—small knives, paper-knives, &c., made in the usual fretwork style, usually of bone, the most elaborate being the conventional woodpecker pattern in a paper-knife. He assured me that he worked by no pattern, but according to traditional ideas; that the only tools he employed were a knife and a file; and that the fish, tiger's head and birds with which his work was adorned were partly his ideas of nature and partly those which his father had copied before him. His ivory came from Bombay or Behar, or wherever he could buy it most cheaply, the price varying according to quality from 6 to 10 rupees a seer. Apart from his Government contract and occasional orders, his chief employers were middlemen, who sold his work in Delhi and elsewhere, and he could undertake any commission.

He volunteered to make me for ₨100 a complete set of chessmen in red and white, of the most elaborate description, with camels and elephants, and the kings sitting upon their thrones. Taking this into consideration, I am inclined to think, in spite of the Lucknow Museum authorities, who profess ignorance on the subject, that the really beautiful set now in the museum may come from the Lucknow workshops; and to support this theory, I am glad to be able to quote the opinion of Mr. Yusuf Ali, C.S., who purchased a similar set in Lucknow. This I have not been able to see, as he had parted with it; and owing to my having to leave India I have not been able to get a similar set made. This, however, is the description he gives of the set made for him, which corresponds very closely with that in the Lucknow Museum:—"Eight pawns about an inch long, dressed according to the carver's idea of old Indian infantry uniform, with shield on one arm and a lance poised in an angular direction in the other (to show the pawn's angular motion when it takes a piece); king sitting on a throne about an inch square; vizier with a stately beard on a somewhat lower 'masnad' than the king; two camel sowars (bishops); two cavalry sowars (knights); two elephant sowars (castles); one set white and the other red (*minakári*) work. Cost ₨40." Mr. Yusuf Ali is inclined to believe that they make these sets also in Benares. I think it is very probable, though I have been unable to get any information on the subject. Judging from the price that Mr. Yusuf Ali paid, I should be inclined to think that his set was made in bone and not in ivory, but the result is much the same.

The ordinary chessmen are, of course, much more modest in appearance and frequently merely shapeless lumps; but these facts tend to show that there is artistic capacity amongst the ivory workers which only needs encouragement and advertisement to be developed into work that is really worth study and inquiry. Moreover, I think there can be little doubt that this industry is not confined to Lucknow, but flourishes to about the same extent in Agra and Benares. Certainly I was told so by the Lucknow ivory worker, though from official sources the answer extracted was in the negative.

My informant told me that his father and grandfather had lived in Lucknow and had always carried on their craft; that they had their own traditional patterns, and that though they generally worked in bone, they were glad enough to take to ivory if they were given the opportunity; that they did a fair trade, though they paid no tax and had no stock. He professed his ability to carve any figure, human or divine, though as portraiture did not come within his scope, the result must be mainly conventional. As to methods of manufacture, he could or would give me little or no information. As I have said, he stated that his tools were a knife and a file; that he used no machine, and attached much importance apparently to the process of polishing, for which, however, he had no special recipe. His orders for ivory work, of course, came mostly from the *Sahib log*, whether directly or indirectly—mostly the latter, as he worked without any ambition or any desire for personal notoriety.

This, then, is the picture of the state of the ivory carving industry in its most favourable aspect. Skilled workmanship on good models, only wanting encouragement from purchasers—and that not in the direction of education, but merely in demand. It is unfortunate that there should be so few connoisseurs in native art in our provinces, and that a busy official life should necessitate neglect of such things, leaving the necessary patronage to the ignorant, if greedy, globe-trotter; but this is probably inevitable, and even in this direction I am convinced that something might be done for the industry, were it a little better known.

In Benares, I was told by the native artists, there is carving carried on to a similar extent and of a like kind, but through official channels I learned that such as there is, or was, is derived from a workman imported in the last generation by the late Mahárája from Murshidabad. This would, of course, be carving of the Berhampur school. This man is dead and has left no successor; and though specimens of his workmanship and traces of his influence may be found, he worked only for the Mahárája, and was his servant and not an independent tradesman. This is, of course, an exceptional case of the fostering of a foreign art by patronage: but I am inclined to believe, relying on native and trade information, as likely to be fully as accurate as that derived from official sources, that the industry flourishes in Benares to much the same extent as in Lucknow, and that the Benares workmen, like those of Lucknow, find their market through the middlemen from Delhi and elsewhere.

The same remark exactly replies to Agra, where moreover may be found models of the Taj Mahal carved in ivory. I am officially informed that such models of the Taj as are sold in Agra are imported from Delhi, but this merely illustrates my point in another direction—namely, that the carvers in Agra work for the Delhi middlemen, who on occasion bring back these wares to the place of their origin, merely an illustration of what frequently occurs in England and elsewhere in other and humbler industries.

This is the result of the inquiry with regard to the industry in its main aspect, but there are, of course, offshoots and exceptional by-products of a less elaborate description; for instance, I learn through Mr. Moreland that there are obtainable in Mussoorie small carvings of animals in ivory, apparently of a very crude description and not unlike the small silver figures which come from Muttra. I had hoped to be able to get some information on the subject from Sahăranpur, but beyond the ordinary rough inlay work, which is found in better quality in Nagina, I have not met with any success.

In Nagina, I learn from the tahsíldár, there is an appreciable industry in ivory, but not of a high order of art. He enumerates combs of the conventional kinds, small boxes, and knobs for walking-sticks, mostly in plain ivory, and says that for more elaborate articles and figures it is necessary to supply a model to copy.

On the other hand, ivory inlay work is carried on to a considerable extent, the ivory being set into ebony in floral patterns after the manner of the Agra marble inlay work. This is familiar enough, and though the better class of inlay work comes from Bombay, the ingeniously dovetailed ivory and ebony boxes may be also obtained here. The really fine work is mostly in perforated ivory of the ordinary kind obtainable in Lucknow, and is scarce, though combs are a speciality in Nagina. Chairs and teapoys are made in inlay work of the ordinary kind—ebony set with ivory in thin strips; but there is nothing elaborate in the patterns, which, though good enough in themselves, do not display anything strikingly original in design or conception. This is a separate branch of the ivory industry and can hardly be described as carving in any true sense of the word; but, such as it is, it is too well known to need description as to manner and style, and quite sufficiently familiar to be independent of advertisement in the ordinary way, though undoubtedly it is capable of expansion under encouragement. Ivory in the raw is a more familiar commodity in Bijnor than in most other places; but that this does not necessarily imply that there is any particular demand for it, is illustrated by Mr. Cockburn, Deputy Collector in Kumaun, who informs me that the Rája of Kashipur and the Deputy Commissioner of Almora, wishing to dispose of their stores of ivory, were unable to find a market in the North-Western Provinces and had to turn to Amritsar and the Punjab, where a demand for ivory always exists for the manufacture of ivory armlets for the women. One of the by-products of ivory is apparently ivory dust, which besides being used for polishing ivory carvings is also much esteemed as a medicinal preparation, which is believed to have an invigorating effect and is used as a tonic.

The price of ivory, according to Mr. Cockburn, varies more than seemed to be known to the Lucknow workmen, ranging from Rs.2 to Rs.20 a seer according to elasticity, size and tint. Mr. Cockburn's information is the more valuable in that he is himself an amateur, and I have learnt from him various details as to the tricks of the trade. The cheapest ivory is derived from young animals, and is brittle and of a yellow tint, so that it is of little use for carving purposes, the most valuable being, of course, tusks that have the greatest diameter and are of a white colour, such commanding a high price because the armlets above mentioned can be turned out in one piece. Ivory is preserved in India, as elsewhere, by being covered with a coating of melted wax, which prevents the loss of moisture

It is unfortunate for the purposes of this monograph that so acute an observer as Mr. Cockburn should have been forced, by the barrenness of these provinces in this respect, to turn his attention to the products of Amritsar, but he confirms my impressions with regard to the industry generally in his remarks as to models. He quotes, as a familiar instance of ivory carving, the little model bullock carts which may be seen frequently at home, but these are not made in our provinces, even the carts themselves being of unfamiliar aspect. At the same time, he

says "Natives are strikingly conservative in their ideas of patterns as of other things, and their animals and figures, their inlaid boxes and perforated carvings, follow the same lines and repeat the old models which are familiar to us in wood, brass or stone." This is eminently true, and with the exception of the carved chessmen, the idea of which is not peculiar to the North-West, and is probably common to all parts of India, being as it is much the same in Amritsar, Berhampur and Bombay, and probably coming from some common model, I should say that ivory carving, in the North-West at any rate, has no peculiar models or ideas to distinguish it in any way from other branches of the carving industry.

To illustrate this remark, I would point out that the ivory inlay work, when it is anything more than ordinarily ambitious, is rather a repetition of the wire inlay or of the brass work of Moradabad; the animal figures are already familiar in brass or silver, and the perforated work may be seen in either silver or wood.

We may congratulate ourselves, at any rate, that so far our provinces in this direction have escaped the corrupting influence of European models, and in this we are more fortunate than the Punjáb, where they have begun to turn out combs and paper-knives in European patterns with Roman letters in quite the approved manner of Bellagio or Birmingham; and it is a melancholy prospect to think that in the fulness of time we may yet find sold on railway platforms paper-knives with the inscription—"A souvenir of Lucknow."

Mr. Cockburn tells me that Benares, Lucknow, Bareilly, Moradabad and Sahâranpur have considerable industries in bone working, more particularly camel-bones, and that they are always ready to work rather in ivory, when they can get or afford it, because it is easier to work and does not require bleaching. This is again in accordance with my original surmise, but, so far as I have been able to ascertain, there is no distinctive product in any of these towns, and the same remarks apply to them as apply to Lucknow: their industry is latent rather than conspicuous, and their market is at Delhi and not in these provinces.

The native methods of workmanship are more crude than the European, though not less effectual; they use ivory dust rather than chalk for polishing, with ultimately the same result, and are apparently ignorant of the possibility of softening ivory with vinegar; but, judging from the ivory carving of India generally outside these provinces, we would gather that, on the whole, the Hindu craftsman has very little to learn to his advantage from the European, and it is to be feared that the introduction of improvements in method might mean a modification of patterns which would be anything but salutary.

To sum up the results of this inquiry, I think there can be no doubt that the industry does exist and is capable of development, or rather, perhaps, of expansion. As to its existence and present state, the skill in craft and the will to work are there, but these are crippled by the poverty of resources and the absence of demand. There is probably ivory enough in India itself, or easily obtainable from elsewhere, to satisfy an increased demand; but, on the other hand, when the demand is so small there is little or no encouragement to work without a definite order. The result of this is that the artists have little practice, and are unable to get more, because, possessing no stock, they cannot advertise it sufficiently to make it known to those who might become patrons. It is probable that were India to produce a great artist in metal, a Benvenuto Cellini, he would die unhonoured and unsung; and much more so would this be the case in ivory carving, which is an art which gives scope rather for ingenuity than genius.

Moreover, when art reaches the level of genius it gets beyond the scope of a monograph, and we have to look rather at ivory carving as an industry on a level with that of the silver workers of Lucknow. Looking at it from this point of view, any development is more practical, though perhaps less desirable. There is little or no native demand for ivory carving as there is little for silver work, and the market is generally found amongst Europeans. The difficulty, if it is desired to encourage the industry, is to advertise it sufficiently to these patrons, or to provide encouragement enough to the ivory carvers, or to give them sufficient capital to enable them to keep a stock of ivory for exhibition purposes.

There is not the least probability that there will ever be any great development of the industry in the provinces, nor any great increase of demand at Delhi, nor would much be gained if there were. Carvers in ivory are not a large class, nor would encouragement employ any great number of otherwise unemployed artists, and in any other direction it is doubtful whether education would be anything but disastrous.

European models are certainly to be avoided, and were the example of the Mahárája of Benares to be followed and an artist imported from Murshidabad or Berhampur, it is difficult to see quite what would be gained. The natural result would be that he would introduce his foreign method of carving and foreign patterns, which might or might not oust the original designs, but in any case would not blend with or modify them.

Moreover, all this speculation means the treatment of ivory carving as an industry, which of course it really is not and can never be; and the attempted encouragement of an art on industrial lines, though possible and practicable in such directions as carpet-making, can never be safely applied to anything like ivory carving, which is by its nature more analogous in kind to working in the precious metals or to the painting of pictures. Looking at the subject in this way, any advertisement of the art must be regarded rather as in the interest of the patron than of the artist; and from this point of view there can be no doubt that were the art better known in the North-Western Provinces, both patron and art would be the richer for work that is even at present good in itself and is perhaps capable of improvement to the point at which improvement in ivory carving must stop. This, however, is a question for the art critic and the connoisseur rather than for a provincial monograph, and opens up a very wide question indeed. As Indian art in other directions stands by itself apart, so also does ivory carving, which presents such opposite poles in possibilities as the mediæval carvings in the South Kensington Museum, the products of old France,[1] and the marvels of ingenuity which characterise the art of Japan. Indian ivory carving stands midway between the two, and the direction its development must take is Indian and must follow the lines of Amritsar or Berhampur. This being so, there can be little doubt that encouragement must be the result not of Governmental interference but of private patronage, which is driven by fashion and caprice rather

[1] Now being reproduced by W. Griggs.

than by judgment and sound appreciation; and would, it is to be feared, naturally turn first to the better known and more advanced products of Bengal or Kashmir, rather than be so original as to strike out an independent line for itself.

The natural channel of influence from Government would be by offering encouragement through museums of local industries, such as that at Lucknow, and it is possible that something may yet be done in this direction; though here again it is doubtful whether India is likely to be much influenced by a local exhibition, or her ancient arts modified with any very satisfactory result.

The conclusion may be a little depressing, but though little in the way of information has resulted from investigation, the object of the monograph will have been amply served if any interest has been aroused in the existence of an art which is at present apparently far too little recognised.

IVORY CARVING IN THE PUNJAB.

By T. P. ELLIS, Esq., Assistant Commissioner.

I.—Scope and Introductory.

The preparation of this monograph on the Ivory Industry in the Punjab has laboured under two disadvantages, viz., a lack of personal knowledge of the subject, and the difficulty experienced in obtaining anything but the very scantiest details of the work as carried on in the several districts of the Province.

The ivory industry falls under three heads:—I. Ivory carving proper; II. Inlaying; III. Turning. The first named is conducted only in two districts of the Province—Delhi and Amritsar, and in the Native State of Patiála. Inlaying, on the other hand, is in a flourishing condition in Hoshiárpur, and prevails to some extent in Dera Ismail Khan, and though returns are not available in the district reports received, there is little doubt it is carried on to a minor degree in every district in which there is a demand for decorative furniture, though in the majority of such districts the ordinary medium is of a different nature. Turning, which includes the manufacture of bracelets, *surmadánis* (small cells of varying shape and pattern used for holding the *surma* or antimony with which the women of the country are wont to darken their eyelashes), and billiard balls, finds a place in practically every town of any importance in the Province, at least so far as the making of *chúras* is concerned, and particularly in Lahore, Gujránwála, Dera Ismail Khan, Dera Gházi Khan, Mooltan, and Ludhiána. Though these branches of the trade are distinct, and the two last named cannot strictly be regarded as carving, I have taken the instructions received to imply that they should all be touched upon. The three industries themselves are, however, of such minor importance, proceed so much on the same lines wherever existing, and the information furnished has been so inadequate, that the material contained in the monograph must necessarily appear slight.

How very minute is the ivory industry in the Punjab may be gathered from the fact that Mr. Baden-Powell in his book on Punjab manufactures dismisses the subject in some four pages. At the time of his writing he states that the industry is conducted only in Delhi, Amritsar, Umballa, Ludhiána, Patiála and Lahore. If this was intended to apply to ivory carving proper alone, the list is too extensive for the facts of to-day; while if it was meant to include the allied industries of inlaying and turning, to those should be added the names of Dera Gházi Khan, Dera Ismail Khan, Gujrát, Gujránwála, Hoshiárpur and Mooltan.

II.—History of the Industry.

Ivory carving is probably one of the oldest of Indian arts, but of its existence in early history there are neither facts nor fables to prove much. In a country itself one of the world's suppliers of ivory and from time immemorial known for the skill and patience of its artists, it is not an unwarrantable assumption that the art was known and cultivated from early times. That work of a sort in ivory was practised in India prior to the Mussalman invasions is certain from the fact that the oldest specimen of chessmen contained in the South Kensington Museum is a set discovered nearly fifty years ago during some excavations on the site of the city of Brahminabad in Sind, which was destroyed by an earthquake early in the 8th century. The pieces are described as turned, plain in character, and without ornament. The chessmen and squares of the boards are black and white, alternate ivory and ebony, the pieces varying in height from one to two inches.

The history of the art so far as it concerns the Punjab is, however, of quite modern date. No early travels or descriptions of the Mughal Court that I have yet seen refer to the encouragement of this particular art; of its existence in Delhi in early times there are no traces, and tradition assigns to it no earlier date than last century. The family of Lála Faqír Chand, the present conductor of the works in the Dariba, appears to have commenced work some four generations ago, but the oldest specimen of work, that of an exquisitely carved Hindu pantheon, dates from only fifty or sixty years ago. (Since writing the above, I learn that the piece has at length found a purchaser). Since the establishment of the works in Delhi, they have been continuously carried on by the family which originally commenced them, and undoubtedly the best work that the Province is able to show is produced here.

In Hoshiárpur the inlaying trade is of ancient date, prior to the British Ráj, in which times it was patronized by the Nawábs and Rájas. Máháraja Ranjit Singh is credited with having employed the services of Hoshiárpur workmen in inlaying with ivory some of the woodwork of the Golden Temple at Amritsar, and other buildings in Lahore and different parts of his kingdom. But under native rule the number of workmen was limited. The Hoshiárpur trade has received a great stimulus under the British Government from Anglo-Indian residents and travellers, and one of the results has been large exportations to America, England and the Continent, where the work competes not unfavourably with the best work of China. Of late years the designs and specimens have

improved, and the numbers afforded employment have increased rapidly. Formerly inlaying was confined to small boxes used by natives, sticks, *chaukis, takhts,* shoes, and *chárpais,* while at present there is hardly an article of European furniture, tables, chairs, mirrors, easels, picture frames, photograph stands, sideboards, hat-racks, glove-boxes, &c., which is not used for decorative purposes. This departure is largely due to Mr. Coldstream, C.S., who displayed great interest in the encouragement of the work, and who is understood to have contemplated the founding of a technical school, more in the hope of improving designs than of increasing the output or the number of the workers.

Patiála has been a centre of ivory carving for several generations, the late Máháraja being especially a munificent patron, keeping in his own employ an experienced workman, whose works, amongst other specimens in his collections, he exhibited at the various Exhibitions in Lahore and Calcutta.

The art of turning *chúras* or bangles must also be of considerable antiquity. In several districts the wearing of *chúras* of ivory is indispensable to women of both the Hindu and Mussalman faiths on the occasion of marriage festivities. In connection with this custom there is an interesting usage. No girl is supposed to wear such an ornament prior to her wedding-day, on which occasion it is the inviolable duty of the bride's *mámu* or maternal uncle to present her with one. Subsequently to the marriage, it is customary for the girl to lay aside her ivory *chúras* (in much the same way as the English bride disposes of her wedding garments), and to replace them with silver ones for common use. The custom is, however, not universal, and it is not uncommon in certain parts of the Province to see *chúras* being worn by other than brides.

It is unfortunate that the wearing of *chúras* is not as general as it formerly was, for, owing to the cheapness of silver and the facility afforded by the presence of the *sunár* in every bazaar, its place is being taken by bangles of that metal amongst the better-off, whilst among the poorer classes coloured glass and wood supply the want. Of late years a departure has taken place in the character of the *chúras* worn, illustrating an advance in taste: whereas formerly they were invariably painted either plainly or with some crude design, fashion now lays down that they are to be worn in the natural colour, and an old set of *chúras* fetches only about two-thirds the price of a modern uncoloured one.

The turning of billiard balls, which is confined to Ludhiána, is quite modern in origin; the trade in India is small, owing to climatic conditions rendering the use of bonzoline or composite balls more advisable, and what trade there is in this article is mostly export, when it has to compete with European firms which have the advantage of using material already seasoned to the climate of the market.

Some interesting facts regarding the industry are forthcoming from the various catalogues of different Industrial Exhibitions, held from time to time in Calcutta and Lahore. In the Punjab section of the Calcutta Exhibition of 1864, 375 articles were exhibited from Umballa, Amritsar, Dera Gházi Khan, Gujránwála, Hoshiárpur, Jullundur, Kángra, Lahore, Ludhiána, Patiála, Shahpur, Simla, and Sirsa, consisting mostly of figures, boxes, chessmen, knives, combs, handles, and bracelets; Delhi, the present centre of the trade, being conspicuously absent. At the Punjab Exhibition of 1881-82, only 111 articles were shown from Delhi, Lahore, Umballa, Ludhiána, Amritsar, Mooltan, Shahpur, Gujránwála, Hoshiárpur, and the inlayers of Basi Ghulám Hussain.

The Calcutta Exhibition of 1883 shows an advance in numbers, namely—101 inlaid articles and 66 specimens of carving, but the exhibitors were fewer. Mr. Lockwood Kipling, one of the secretaries, then wrote:—

"Ivory carving is not an art that flourishes in the Punjab. At Amritsar great quantities of combs are made, an industry which probably originated with the Sikhs, who are *Nazarenes* in the treatment of their hair and beard. The ivory combs, paper-cutters, and card-cases of Amritsar are ornamented with geometrical open-work patterns of some delicacy of execution, but no great interest in design. Figure work is but seldom wrought in this Province owing to the predominance of Mussalman notions, and the only figure-carver of Delhi, Faqír Chand, does not appear to meet with much encouragement."

This *resumé* of the art as it existed twenty years ago is true, with but slight alterations, of the industry of to-day. There has been since then an advance in one direction and a decline in another. Ivory carving has improved in Delhi and inlaying in Hoshiárpur, but in Patiála and Amritsar the industry has fallen on evil days.

III.—The Material.

The ivory used in India is drawn from three sources, viz., Africa, Burma and India itself. Burmese ivory does not seem to be used to any appreciable extent in the Punjab, and Indian ivory is at a discount. In comparison with the African article, the latter is inferior. The former when cut is of a warm transparent tint, with no appreciable appearance of grain, as it dries through exposure, the oil evaporates and the ivory itself grows lighter in colour. Indian ivory, on the other hand, when cut appears more like long exposed African, and has a tendency in time to assume a pale yellowish tint. The former is considerably harder, closer in texture and easier to polish, the lack of polish being one of the best criteria to judge whether an article is made of African or Indian ivory.

The opinion of experts on the quality of Indian ivory appears to be that its inferiority is almost entirely due to the food. Lála Faqír Chand states that possibly the fact that so many of the animals in India are owned by Rájas, who regale them partly with sweetmeats, accounts for the softness. Mr. Baden-Powell has written:—

"The ivory with which these carvings are executed is obtained from the tusks of wild elephants. The natives say that the tusks of domesticated elephants yield a brittle and inferior ivory liable to crack on exposure to air. My informant further asserts that the cause of the brittleness of the tusk of the domesticated animal is the salt that is given with its food."

As a matter of fact, the wild elephant in India affords but little material to the Punjab; the Tirai in Oudh alone is capable of furnishing any quantity, and that is a source which is but slightly drawn upon. The reasons, therefore, of the inferiority of Indian ivory are probably partly the surroundings of the animals, domestication and unsuitable food causing deterioration, partly climatic, and most of all an inferiority in breed.

The ordinary African ivory which is used in Delhi is mostly bought in Bombay, and costs in the block ₨ 20 to ₨ 24 per sér (2 lbs.); the best Indian ivory is usually charged for at the rate of Rs. 16; and inferior ivory of

both classes, costing from Rs.4 to Rs.10, is obtained from Amritsar, and used by the children who are undergoing training, and for coarser and cheaper work. The same prices range in Patiála where the purchasers buy in two markets—Bombay for large quantities, Amritsar for small.

The prices in Dera Ghází Khan, due possibly to the distance from the markets, rule a little higher when it is borne in mind that the best ivory is not in common use. The ivory is divided into three classes, roughly corresponding with definite qualities. Ludhiána and Jagráon derive their supply from Burma, South Africa, Zanzibar and England at rates varying from Rs.10 to Rs.15 per sér, this, of course, being far from the best quality.

In Amritsar, where the trade has during the last few years seriously diminished, the manufacturers in present times do not go direct to Burma, Africa, or Nepál for their material; whether they ever had any trade relations with these places is not clear, though there is a general impression that in past times the leading carvers imported their own ivory. Both employers and special artizans in ivory and "artizan proprietors" now import the raw material either from Calcutta or Bombay. This they divide into three classes according to the original source:— I. *Purbi*, that which comes from the east, whether from Burma or Nepál; II. *Surti*, which embraces importations from Bombay other than III. *Zanzibari*, a term used to differentiate the ivory of Zanzibar from that of the rest of Africa.

The best specimens come from Africa and Burma, and are chiefly employed in the manufacture of *chúris*,— the Indian ivory, so full of flaws and cracks as it is, being useless for that purpose. Perfect samples from India are, however, sometimes obtainable; but whether these are then prized more than Burmese or African produce is not clear. Amritsar is always a fairly considerable depôt for the distribution of ivory throughout the Punjab, most of the towns where bangle turning is carried on in a small way indenting on this centre for their supplies. The quality, however, of the ivory imported by the Amritsar traders appears to be somewhat inferior to that used by Lála Faqír Chand of Delhi, due, no doubt, to the less ambitious work attempted.

Mooltan, like the other centres, derives its ivory from Bombay, Calcutta and Amritsar in the rough tusk, and the classification adopted is apparently not geographical, but according to the immediate market at which it is bought. The rough tusk, after importation in bulk, is rounded off; the circular piece is denominated *nag*, and the remnant, including the thinner end of the tusk as well as the interior, is called *gatia*.

The ivory imported from Calcutta (Mirzapuri) is esteemed the better quality, being whiter than that from Bombay (though this, I am inclined to believe, from what is the general impression left from information obtained from other sources and the explicit statements of those who know best, is very far from being true, I give the idea of the Mooltanis for what it is worth), commanding as *nag* Rs.22 per sér, while that of Bombay is purchasable at Rs.20; the *gatia* from both markets realising Rs.6 to Rs.8. Before using, the *nag* is further strengthened by the addition of wax to prevent its bursting.

Hoshiárpur is supplied from Jullundur and Amritsar, as they are within easy and inexpensive reach; the individual workers, being poor as a rule, contenting themselves with procuring material from the nearest market. A cheap quality of ivory is preferred, as it is used only for inlaying, principally refuse after the turning of bracelets, and the inner brittle portion of the tusk. To some extent camel-bone is also used by the inlayers of Hoshiárpur, and, except to the expert, it is in inlaid work difficult to detect the difference; it is, however, more perishable and liable to decay, and quickly loses its gloss and brilliancy, though by polishing it can be temporarily restored. In addition, *chikri*, a kind of white wood, bearing a superficial resemblance to inferior ivory when new and polished, and costing about 2 annas per sér, is used either as a ground-work or an alternative to ivory.

Hoshiárpur ivory costs from 8 annas to Rs.5 per sér; the workers themselves are ignorant of the distinction between the Indian and African qualities. Lahore is supplied from Zanzibar, *viâ* Amritsar, Bombay and Calcutta, and the ivory tusk is on sale in the district at Lahore, Chúnian and Kasúr. Bombay ivory ranges from Rs.15 to Rs.16 per sér, and Calcutta from Rs.19 to Rs.20.

IV.—Locality of Work.

Except in very few instances, the ivory industry is confined to the large towns. The reason is not far to seek: from its nature it is not wide-spread; it is an art that appeals to a very limited circle, and to command a sale, the purchasers being almost exclusively European, it is necessary that the work should be conducted near a centre frequented by them. The only exception to this is in the industry of bangle-turning, which, as previously remarked, is carried on to some extent in every large town in the Province.

Ivory carving proper is confined to three cities—Delhi and Amritsar in British territory, and in the capital of the Patiála State. In the former city, Lála Faqír Chand of the Dariba practically monopolises the trade, and, in fact, there is no one in the Province who can in any way compete with him. In Amritsar, the quarter known as the "Darsheni Darwaza" contains nearly, if not all, the workers in ornamental products and the manufacture of toys, while the *chúrigars* or bangle-makers live and work in the "Katra Mohr Singh." In Patiála there are only three workmen, Mussalman in religion, employed to a very large degree by His Highness the Maháraja, they living at the capital.

Bangle-turning, though general throughout the Province, has its chief centres in the Amritsar, Dera Ghází Khan, Gujránwála, Mooltan and Lahore districts. Some of the best workers are those of Dera Ghází Khan, all of whom reside in head-quarters. In Gujránwála bracelets are made at Sadr, Wazirabad and Ramnágar, the most important merchant being at Gujránwála itself; he imports about Rs.1500 worth of ivory each year, so his trade must be of considerable extent. The supply of *chúras* is in the hands of five workmen, who have three shops between them. At Wazirabad and Rámnagar there are only two workmen, one at each place. These men are occasionally employed in making *surmádanis* and small buttons, In Mooltan and Dera Ismail Khan the workers have some local repute, and Lahore, in addition to having a few shops where ivory goods are to be bought, has four craftsmen of some skill in turning, all resident in the Dabbi Bazaar.

The great centre of inlaying work is the district of Hoshiárpur. Amritsar has a certain amount, and during the summer months some of the inlayers of Hoshiárpur locate themselves at Simla, charging double prices for the privilege of purchasing there. A little is done in Dera Ismail Khan, more of the nature of embossment than inlaying; and Mauza Phália, in the Gujrát district, possesses a few artizans who occasionally engage themselves in inlaying *charkhás* or spinning-wheels.

In Hoshiárpur, the four centres are Hoshiárpur, Pur Hiran, Khuáspur, and Basi Ghulám Hussain, the first-named being rather a depôt and the last-named being famous not only in India, but even throughout Europe and America. The turning of billiard balls is confined to the Ludhiána district, Ludhiána city and Jagráon being the two places where the industry, in conjunction with that of bangle-making, is conducted.

V.—The Workers and Dealers.

In the shop of Lála Faqír Chand of Delhi about 20 men are employed, the majority of whom are Brahmins, though the art is by no means confined to a particular caste or religion. Ivory carving in Delhi is almost exclusively hereditary, the system of training being long and arduous, which tends to the limiting of the acquisition of the art to families.

The training of the would-be artist commences at an early period, usually when the boy is about 10 or 12 years of age. For about four years the pupil is taught freehand drawing by the head-carver, or in some cases by his father, his apparatus consisting of a slate and pencil, or chalk, and his sketches being largely figures of animals, *e.g.* dogs, camels, and floral designs, advancing in difficulty as the youth attains to skill. From freehand drawing the pupil advances to model drawing, using as his models some of the ivory figures executed by the workmen in the shop. Some of the sketches, which I saw drawn by the only present pupil—a lad of 11—were of excellent quality. After the learner has attained proficiency in this first step he is given a file and a rough block of coarse ivory, and he proceeds to learn how to smoothe the ivory and render it fit for the next process at the hands of more experienced workers.

He is kept at this work for 2 to 2½ years, at the expiration of which term he is initiated into the art of sketching on the smoothed ivory with a lead pencil, reproducing on the ivory the same designs he learnt to draw on slate. From this he proceeds to delineate on the surface of the ivory the lines on which a full figure will be carved. When he has succeeded in adapting himself to his new material, he is provided with a piece of inferior ivory and instructed in the art of filing his figures on the surface. He is then gradually taught to pass from surface to block figures; and when he has attained to proficiency in the latter he passes on to the most difficult art of all—that of perforation, beginning first with coarse work and gradually attaining to the finest qualities, until at length he is able to turn out a beautiful figure richly adorned with tracery and perforated trappings. A good deal naturally depends on the individual himself in the progress he makes, but even with the advantages of hereditary instinct, application and natural gifts, it requires a period of 20 to 25 years of careful training before a workman can be trusted and considered proficient in all branches of his art.

The workers in Delhi are nearly all organised under Lála Faqír Chand, taking up the trade from father to son, as the master craftsman himself. There are, as far as I have been able to discover, no individual workers in Delhi; there appear at some time to have been a few, but their work was always inferior and their efforts short-lived; they were probably too poor to purchase the best class of ivory, or to pass (as is necessary over a perfect specimen) months, if not years, without receiving payment. The capitalist is, in default of the patron, a necessity for the best work to be produced. As it is, the master craftsman employs his carvers at a fixed wage varying according to the capabilities of the workman, supplies him with the material and sets the task, he himself taking the risk of sale, of the destruction of the material, and the long period of waiting before a return is made for the outlay.

The factory of Lála Faqír Chand is above the ivory shop in the Dariba. The workers are congregated in a small room along with the wood-carvers and the miniature painters; some sit on the balcony, some on the stairs, some by open doors and lattices, wherever they can obtain sufficient light to work by, surrounded by their primitive implements, the whole forming a typical scene of the Indian artist at work, the surroundings in which his work is done containing everything to make it difficult, yet the result is exquisite.

The wage of the workers varies from that of the lowest grade earning ₨ 5 a month to that of the best workman in the shop with his ₨ 50. Of course, the apprentice is paid nothing until he is of sufficient skill to turn out a saleable article. This he is able to do in from five to seven years, and the first wage for such employés rarely exceeds Re. 1 a month. It is only the superior workmen who are entrusted with the better class of work. Some pieces represent the labour of two, three or even four years, and at the last moment a slight slip of an instrument, a careless movement of the hand in perforating, may ruin the toil of months, besides rendering valueless the precious ivory itself.

The tools employed are to European eyes of a decidedly primitive character, and it is a matter of more than ordinary surprise that such perfect work is produced by such inadequate means. Sketches of the tools employed in Delhi are shown in Plate 80:—1, 2, 3, the *ári* or saw used for cutting through the bark of rough tusk, for cutting off the bark, and for the final cutting into the required sizes, respectively; 4, the *kenchi*, cutters or splitters, used for cutting fine thin sheets of ivory into strips; 5, the *chhuri* or paring knife, used in preparing the work for carving; 6, the *chhuri* or finishing knife, used in preparing the work for turning and rounding off edges; 7, the *sohan* or file, used for finishing large work only; 8, the *sohan* or rasp, for finishing the rough edges of holes; 9, a flat rasp for square rough work only; 10-16, *birkas* or chisels, for small grooves; 15, used in place of our gouge; 17, 18, groovers used in clearing small grooved work; 19-24, assorted files and rasps; 25-29, assorted drills or *barmás*; 30-34, points and punches, used for clearing work from dust after polishing; 35-38, rabbetting plane-irons, *randa*, used for ornamental work round bases or stands, also for beadings.

The whole of the work is done in the factory under the direct supervision of the head-worker, and no one is allowed to do work at his own home, the finished product in every case being the master's. The profit of the master craftsman varies. On the side of expenditure—there is the cost of tools, the pay of the workmen (extending sometimes over several months while a piece is being prepared), and the frequent delay in selling the articles produced; for instance, there was until recently, in Lála Faqír Chand's shop, a beautiful carving of some Hindu gods which was executed some 50 years ago, and which was valued at Rs.2,500. On the other hand, an expensive article is sold, and good orders may come in from a wealthy patron (in the winter of 1899 one specimen was sold for the remunerative figure of Rs.,8000=£500), so that an average fair rate of profit can only be ascertained with difficulty. They are not extensive, and may safely (according to Lála Faqír Chand's estimate) be assessed at from 5 to 10 per cent on the original outlay, which, in view of the profits obtained in other Indian industries, is but a very slight return.

Lála Faqír Chand has his own shop in the Dariba, where the productions of his men are sold, and he also practically supplies the whole of the jewellers in the Chándni Chowk, who sell partly on commission and partly after purchase, but the best class of work is obtainable at the manufacturer's own shop.

The comparative inadequacy of the profits on ivory carving, no doubt, injures the production of highly-priced articles, and the risk of a considerable outlay producing no return unless a special order has been placed, added to the desire of obtaining cheap specimens, result in a large quantity of small and therefore cheap objects being manufactured. It should, however, be noted that the greatest skill is devoted to the production of specially ordered goods, and it is amongst them that the best specimens are to be found.

The organisation of the workers in Amritsar has many important differences. As far as this city is concerned, the workers may be divided into two classes:—I. Those employed in bangle-making; II. Those who are engaged in the manufacture of toys, figures, and ordinary useful articles such as combs, paper-knives, *surmadánis*, card-cases, boxes, and who prepare the geometrical and floral designs for inlay work in wood or metal. Some of these latter restrict their operations, as a rule, to toys or inlaid work; occasionally, when trade is slack, turning their attention to other kinds save only the cutting and turning of bracelets.

There are three castes engaged in the trade—(*a*) the workers in ornamental productions who are called Rámgariás or *tarkháns*, all Sikhs, due possibly to the great demand by the Sikhs of the neighbourhood for ivory combs; (*b*) the *chúrigars*, Khatrís by caste, who are proprietors of concerns where *chúras* and bangles are made, and (*c*) where the artizans are Mussulmans. The two former castes form a large part of the population, but the number of persons engaged in the ivory industry may be counted on the fingers of the hands. What is true of Delhi is true of Amritsar; there is no special caste identified exclusively with the art like the *sunárs* of the gold and silver industry. Of the Rámgariás there are about 12 persons employed in the manufacture of articles of use and ornament, while bangle-making claims another dozen of "Khatrí *chúrigars*," and in both cases the calling is hereditary.

As the work is less ambitious than that of the fellow artizans of Delhi, so the apprenticeship is less arduous and lengthy. Lads aged from 10 to 12 years are apprenticed (*shágird*) for at least six months or a year to a master craftsman, who puts the youngsters on to working on soft woods, then to harder woods, until both hand and eye are sufficiently trained, when they may be employed on the precious ivory itself without much danger of spoiling the work or material. Sometimes the apprentice is expected to offer a small gift of some sweetmeat to his instructor, but this is not enforced, and it might be taken, as a rule, that the articles of apprenticeship require neither a "fee" from the lad nor pay from the master. When the pupil has made some progress in the acquisition of the art, the teacher makes an allowance which is gradually raised to the pay of an accomplished workman. Sons often succeed to the business of their fathers: other relations may throw in their lot with their kinsman teacher or start fresh concerns of their own, but this (from the fact that the industry is not a growing one) must very seldom be the case, and is borne out by the fact that the number of shops has remained stationary for some years.

So far as the manufacture of toys and articles of use or ornament are concerned, the workers manage their own business in every detail—that is, the *tarkháns* or Rámgariás import their own raw material and work it themselves, assisted by one or two minor craftsmen and apprentices. In a small shop the working proprietor represents the whole establishment: in a few others the master craftsman employs a few hands, so that it might be said that both systems of working obtain in Amritsar. The result is, that as each worker has more or less to live by what he makes from day to day (there being no one of sufficient capital to permit of months passing while a perfect piece of work is being prepared), the best specimens of Amritsar work can only compare with the cheaper goods manufactured at Delhi; and it is a fact the more to be lamented that the exquisite productions of the latter place are not to be found here, since it cannot be many years ago when they were not widely separated rivals in the art. Those employed in bangle or *chúra* making work under somewhat different circumstances. Their business is represented by two classes of persons—the Khatrí *chúrigar*, who furnishes the capital and arranges for the import of the tusk, beside watching for the demand for the finished article,—and the actual artizan (Muhammadan), who is practically a servant turning out so much work for a given wage. The Muslim worker and his Hindu employer appear to carry out each his own part to their mutual satisfaction.

The tools used may be conveniently divided into three classes:—I. Those used in perforation work, carving and inlay work (Plate 80); II. Tools for the manufacture of combs (Plate 81); III. Tools used by the *chúrigars* for bangle turning. Many of these are similar in make and employed in a similar manner as tools used in wood or metal work, the names alone being different. For perforation work, &c.:—39, *Rethi* or file; 40, *Barma* or drill; 41, *Kath-kashi*; 42, *Parkár* or compasses; 43, *Hathouri* or hammer; 44, *Parkár* or fixed compasses; 45, drill-bow. The *rethi* (unlike ordinary files, which are straight) is curved like a scythe, and has teeth cut on each side of the flat surface which does the filing, while the edge is convenient to both cut and file. For combs:—46, the *ári* or saw; 47, the *patal*, a fine file used in cleaning between the teeth of a comb, and for making the

surfaces smooth between tooth and tooth; 48, the *thasul*, used in rounding the edges of the teeth on the outside, to prevent the hair catching or being torn by the sharp edge of the comb; 49, the *rethi* or file, rough cut on one side and smooth on the other.

After the outer surface of the ivory cylinder from which the *chúras* are to be cut has been made perfectly even and smooth by the *dutli*, the *chirna* is employed to cut a number of deep grooves representing the thickness of the *chúras*. The bangle is now almost ready; all that remains is to sever the several bands between the grooves from the parent cylindrical block, and this is done by the *singari*. This tool is a bit of flat steel, broad in the middle and tapering to a fine point at each end: the ends are well tempered, and the tool is used to turn the ivory bark by doing so towards the thickness of the tool. The length of the part thus turned is the breadth of the *chúra* to be cut. The tool is applied while the block prepared up to the second process is quickly revolved by the bow, and the bands made by the *chírna* come away from the tusk one after the other. The rings are now ready-made *chúras* or bangles, no polishing or other manipulation being necessary. If painting or lacquering has to be done, it is always done before the *chírna* is set to work.

In addition to the artizan who shapes and forms the various articles in ivory with his own hands, there are two necessary minor helpers, those who conduct the business of the *chírnawála* or sawyer, who saw the tusk into the proper sizes required for each kind of work before it is put into the hands of the craftsmen, and the polisher to whom it goes afterwards for a good finished surface. One or two sawyers do all the sawing required by all the shops in the city, and one polisher, with occasional assistance, disposes of the whole of the polishing. The remainder of the work is done in the shops already referred to, the worker in each class doing all that is necessary for his particular task. The more difficult part of the work in any one article is entrusted to the more proficient workmen in a shop or reserved by the master for treatment at his own hand.

Patiála is the third city in which ivory carving proper is conducted, and during the lifetime of the third Mahárája the special artists employed by him attained to a very high degree of proficiency. It appears that at the present time there are only three workers, Sheikh by caste, who preserve the knowledge of the art entirely in their own families. The old patronage which they formerly received is not extended to them as liberally now, and they are more or less dependent on what they can sell to passing visitors. The system is that of the small working proprietor, each man making and selling his own productions.

The tools they use are few—the saw, adze, turning-frame, knives, rasps and files,—all country-made, and the rate of profit is small, amounting, according to the report, to only 6 pies in the rupee, or little more than 3 per cent. The Patiála artizans employ themselves in the production of carving and bracelet-turning, but owing to the lack of means of disposal the character of the former is inferior.

Hoshiárpur, which is the great centre of the inlaying work and manufacture of decorative furniture, has also several people employed in bangle-turning. As is the rule at all places where bangles are made, only the outer bark of the tusk is used for the manufacture. The ivory bracelet is in exceptionally good demand in this part of the Province, and the majority of Hindu women hardly consider their trousseau complete without two or three sets. A set of these bangles, comprising sometimes as many as a hundred separate rings, is termed collectively a *chúra*, and frequently reaches from the elbow down to the wrist; and as the sloping of the arm corresponds roughly with the shape of a tusk, the outer rim of a tusk frequently finds its way in graduated bangles on to a woman's arm. The end of a tusk, which is too thin to permit of more bangles being made, is employed in the other ivory industry of Hoshiárpur—inlaying, with which the district is more generally associated.

The workers are, for the most part, ordinary carpenters, mostly Hindus, without being confined to any particular caste. They number about 40 at Basi Ghulám Hussain, 30 at Khuáspur, 20 at Sadr, and 10 at Pur Hiran, and in addition there are the children of various ages undergoing training, so that there are not many less than 200 actively engaged in this industry. As is the case in most Indian arts, the industry is hereditary, without being as exclusive as is popularly supposed, the children of an artizan taking to the father's trade without reference to his own capabilities. Inlaying does not require the same application and instinct as carving, and the reason of the industry being hereditary lies rather in the intense conservatism of the people than in the necessity for special gifts. This conservative peculiarity is illustrated further in this particular trade, for though the inlayers of Basi Ghulám Hussain have been known throughout the Punjab for three or four generations, and though the demand for decorative furniture amongst Europeans has led carpenters to adapt themselves to new forms, yet the peculiar inlaid work with ivory remains practically local.

The organisation of the workers is non-existent. Each worker works at his own home and for his own hand, surrounded by the members of his family, making the table or box, whatever he pleases, and completing it himself by inlaying it. When it is finished, he takes it to the bazaar and disposes of it to the best advantage he can to the dealer, who maintains a shop in the town, or wanders over the length and breadth of India from Pesháwar to Calcutta, to Madras and Bombay, carrying with him several hundred-weights of goods which he displays on the verandahs of the bungalows. There is hardly any one of the actual workers possessed of sufficient capital to command exterior service; the men appear, as a rule, to be extremely poor, and living as they do from hand to mouth, the main object of the artizan class is to dispose of the goods as soon as possible for what they will fetch.

Of training a description is impossible, as it is without method. It appears to consist mainly of mere intelligent watchfulness on the part of the boy looking on at his father working in the homestead, and picking up gradually the incidental points,—not a difficult task, seeing that from his cradle he is surrounded by those engaged in the work, and bit by bit imitating those whom he has been watching. The child is usually given a few hints at the age of 7 or 8, and with these he may be said to enter on his apprenticeship such as it is, and in the course of 10 or 12 years he becomes a capable workman.

The tools employed are those generally used by carpenters and ironsmiths for inlaying, engraving and setting. No progress has been made by the artizans in the improvement or invention of implements, though some English made machines are gradually coming into use; but the better work is still done by hand.

The profits of the trade appear to be extremely slight, the chief gainers being the middleman shopkeepers, who seem to have a kind of local understanding to keep down prices paid for the finished article, while charging the purchasers three and four times the amount they themselves have invested. On the rare occasions on which the artizans work for wages they receive from Rs.4 to Rs.16 a month, and Rs.10 may be taken as a fair average of the monthly income of the artizans when working for themselves, an amount which fades into insignificance by the side of the *bannia's* profits. The few artizans who themselves employ others make, however, a fairly handsome profit, sometimes as much as 100 per cent.

In Ludhiána, which may fairly be considered the centre of turning, both the manufacture of *chúras* and billiard balls find a place. In the town of Ludhiána the turners are Qureshi Muhammadans, who are the hereditary depositors of the trade, and who are commonly called *chúrigars*. The artizans are of the same faith, and also carry on the trade hereditarily. The organisation is simple, the turner working at home and selling the *chúras* either to order or to casual customers.

The turners' implements used in Ludhiána are fuller and of a more elaborate description than are employed elsewhere (Plate 81). The names are as follows :—50, *Jand*, the turner's frame ; 51, *Kanda*, iron rod ; 52, *Sua*, pointed pivot ; 53, *Kamána*, bone ; 54, *Subbal*, iron rod ; 55, *Dhur*, turning axle ; 56, *Loha rach*, pointed chisel; 57, *Mathni*, a broad chisel for smoothing ; 58, *Singari*, used for cutting the ivory and separating the cylinder into bracelets ; 59, *Chírna*, a fine-pointed handleless chisel ; 60, *Rangwata* or *Agwartha*, polishing stick ; 61, *Kher*, a fine-pointed chisel ; 62, *Verma*, gimlet ; 63, *Kalbut*, the wooden cylinder on which bracelets are mounted for colouring ; 64, *Bambia*, stick to which the piece of ivory is fastened for carving ; 65, *Tíra*, a wooden pin introduced into the hollow of ivory while on the lathe ; 66, 67, *Rachi* and *roda*, bars of iron worked into a blade at ends, used for turning ivory ; 68, *Tesha*, adze ; 69, *Ari*, saw ; 70, *Chari*, hooked tongs ; 71, *Rethi*, files ; 72, *Tikera*.

The amount of work that an efficient worker can do in a day is astonishing, he being able to produce about eight sets of coloured bracelets a day, containing some 160 to 240 separate rings. The profits, however, are small, amounting to not more than $1\frac{1}{2}$ anna per set ; *i.e.*, 12 annas a day represents a workman's earnings. The turner of billiard balls can at most produce one set of three per day ; the value of the ivory employed in a set is from Rs.16 to Rs.18. A turner receives when working for a trader Rs.3 a set ; the trader charges his customer from Rs.3 to Rs.4 a set more : a good set being obtainable for from Rs.20 to Rs.24.

Mooltan is also an important centre of the industry of bracelet making, the bracelets being made from the *nag* described above, while the *gatia* is used for *surmadánis*, buttons, *dibiás*, small pen-stands, boxes, and chess-pieces of an inferior quality—all turned work, not carved. A full *nag* will supply from 150 to 175 pairs of bracelets. Only two qualities are manufactured here : the one thick and the other thin. As a rule, the workers work entirely in their own homes, and except in very few instances are piece-workers of the wealthy *mahájans* of the city, The usual practice is for the *mahájan* or banker to purchase the ivory and hand it over to the turner, who transforms it into *churas*, receiving in return pay by weight—for thin bracelets 8 annas a pound, and for thick 4 annas. An experienced worker can turn out about 150 bracelets in a day of six hours. There are only nine turners in Mooltan ; the demand is much greater than they can supply, and a fair number are imported into the villages of the district from Dera Ismail Khan and Chiniot.

The same remarks apply to Dera Ismail Khan, where, however, there is a small industry in the hands of the ordinary *tarkháns* in the manufacture of ivory knobs and studs for affixing to lacquered wood-work. It is unimportant, and may be disposed of in the words of Mr. Lockwood Kipling :—

> "Ivory ornaments in the shape of knobs, studs and flowers ingeniously etched and carved are liberally applied. . . . . . This practice arose in the first instance from the necessity for covering with an ivory stud the hole left in the ware by the iron lathe point on which it revolved. It is carried to excess at Dera Ismail Khan."

In Lahore the turners are Mughal by caste and the profession, as elsewhere, is hereditary. The boy of a family is invariably taught by his father, beginning when about 10 by making wooden *churas*, and then being set to prepare round articles such as *naukas* out of bone, eventually being permitted to use ivory.

The work is of a fair quality and the instruments used are only seven in number :—*Tábi* (a long iron plane), *chírna*, *singari*, *kherád*, *kamáni*, *sil*, and *tesha*.

Gujránwála calls for no further remark ; the trade is practically in the hands of one, and the art of turning presents no special features there.

Dera Ghâzi Khan has a fairly flourishing trade, and one or two points require notice. The pupil usually learns his art by the use of cocoa-nut, and in a year's time can safely be trusted with ivory. The system of work is somewhat peculiar, similar to that which prevails in the manufacture of silver ornaments. The would-be wearer himself purchases the ivory and hands over the raw material to the workman, who manufactures the set sometimes at a daily wage, sometimes at so much per set. In the few cases where the workman provides the ivory, his usual charge is the price of ivory *plus* Re.1 per set, and his average profits range from Rs.20 to Rs.40 a month. The tools in use are the universal *chírna* and *singari*, and in addition the *kirpána* used for smoothing the ivory, and the *larhána* used for marking off the bracelets on the piece.

VI.—The Work and its Prospects.

In the factory at Delhi the carvers are confined to their particular branch, while side by side with them, under the same organisation and same roof, work miniature painters and workers in sandal-wood, and though the ivory carvers are frequently capable of working in the latter material, they are, as far as their respective crafts are concerned, practically apart.

As in all Indian work, there are certain well-defined stock models, which are reproduced time after time, possibly with slight variations in ornamentation as they suggest themselves to the fertile ingenuity of the carver. It would be a mistake, however, to imagine by this that they are incapable of working out of the beaten tracks, for not only are the best carvers possessed of considerable artistic feeling and imagination, and capable of repro-

ducing their ideas in ivory, but they are extremely adept in carving any figure or design which may be specially ordered, even from so unsatisfactory a model as a photograph. Some of the best work produced is that done under these conditions. The purchaser who desires a particular object carved must necessarily be wealthy, and the most skilful worker is put on to execute the commission, the price, of course, being naturally heavier than what is usual for specimens of stock designs.

It is a pleasing feature in the work that most of the designs are essentially Indian, and the craving after European models so characteristic of other Indian arts has not as yet begun to influence the Delhi carving to any appreciable extent, and consequently there is an absence of deterioration to imitation.

The characteristics of the work may be roughly divided thus:—I. Figure or model carving; II. Perforation; III. Tracery, usually floral. These three characteristics are frequently combined in a single specimen, and it is only in the cheaper model specimens that ornamentation is not introduced. Of the three the former is the least satisfactory. There is in every figure a certain unnatural stiffness, a want of flexibility in appearance. Even in highly-carved elephant figures, where the trappings, chains, decorated *howdahs*, &c., are exquisitely executed, the general effect is somewhat marred by the clumsiness of the central figure. It is often a little exasperating after admiring the perfect symmetry of the tracery designs to be confronted with an animal, round which these designs are worked, apparently taken out of a child's Noah's ark, without joints, and with its left side invariably concave and its right convex.

For this there are two reasons—the one historical, the other the result of the material in which the work is executed. There is no doubt that the long period of Mussalman predominance, with its attendant discouragement of the production of animal figures, has had a limiting influence on ivory carving, as it has on all Indian arts. The practical proscription of anything which might tend to be construed into an image has so effectually discouraged the art of producing them that the best work must be sought for in what was a legitimate subject for representation. The other reason is the desire to as far as possible economise the material used. The result is, that in order to prevent waste, the carver works as near the outer bark as possible, and as there is in the tusk itself a natural curve, the effect on the figure is that noted above—the peculiar lop-sidedness (if I may use a forcible term) of the animal. Besides the desire to economise there is a further quality in the ivory itself which leads to the same result, *viz.*, that the further you get away from the bark the poorer becomes the ivory—more brittle, more liable to discolouration, and harder to take on polish.

The Jury Committee of the Exhibition of 1864 described Punjab carving as being at a low ebb. This still appears to be true, to some extent, of figure carving, though even the figures of Delhi compare not unfavourably with the best specimens of Burma. This opinion, moreover, is to be read with one important modification, for it should be remembered that the best work of the Province, that of Delhi, was not represented at the Exhibition, and there is a considerable difference between a model of the value of Rs.2,000 from that place and one of Rs.20 or Rs.30 from Amritsar, the only survivor of carving proper of the Punjab exhibitors.

Tracery designs, geometrical and floral, of the most intricate character are exquisitely worked, and the same design (for instance, in the handle of a paper-knife) is reproduced time after time without the least discrepancy. Descriptions of such designs are impossible, but they all display a real artistic feeling amongst the workers. There is nothing so striking as the comparisons between the caparisons of a figure and the figure itself, or between, say, two paper-knives, one with an animal design and the other with a floral pattern.

The most difficult work of all is that in which Lála Faqír Chand's workmen excel—perforation. Two of the best specimens, to which no reproduction can do justice, are (1) a chain attached to a *howdah* on one of the elephant figure made of a solid piece of ivory—elephant and trappings—with the links interlaced and separate, each link not being greater than the size of a pin's head, the whole chain containing upwards of 50 links; and (2) the head of a paper-knife, the exterior being a beautiful floral design closely worked, and the interior hollowed.

In connection with ivory carving there is an interesting adjunct—miniature painting—conducted in Delhi. The two industries are closely allied, but the latter is outside the scope of this monograph, and all that is necessary to note here is the method of preparing the ivory for the painter. The ordinary method is by sawing the tusk with a fine saw into long thin plates, which are subsequently cut as required into various sizes. The plates are then generally placed in a press with the object of preserving the flattened shape, and kept in that position for four to nine months, until they become properly dry, seasoned, and clear of oil, and there remains no further danger of cracking or discolouration. On being taken out, the plates are subjected to frequent and careful planing with instruments, gradually becoming finer and finer, until at length they become perfectly smooth and are passed over to the polisher, who, after polishing them for some time with chalk, completes the process, and the plates are ready for the miniature painter.

Those causes which operate against the development of other Indian arts are to some extent apparent here. The daily increasing proximity of Europe leaves the present Anglo-Indian with less inclination and power to patronise native art in the way and to the extent his predecessors did, and there is a constant tendency to more and more Europeanise the ornamentation of a bungalow, with the attendant result that natives adapt themselves to the production of articles more and more on a European model. The increase of communications internally, resulting as it does in the constant changes of officials, leaves the latter with less desire to accumulate articles liable to destruction, and there is also the constant tendency to estimate the cost of labour on the basis of that of the unskilled artisan, and Europeans expect to obtain articles in India at a ridiculously lower rate to what they could purchase them for in England. The idea that the prices asked are excessive is not in the ivory trade a just one, but the natural result on the industry itself is the production of inferior work to satisfy the market.

The levelling tendency of British rule, while it has, on the one hand, bettered the condition of the mass of the people, has by the gradual absorption of the wealthy classes and the reduction of native courts, removed the greatest incentive—that of patronage—that native art possessed; and though the country be wealthier, the wealth has the tendency of gravitating from those who had the desire to encourage art, to a class which has no pretension to artistic feeling.

A MONOGRAPH ON IVORY CARVING.

By CECIL L. BURNS, Acting Principal of the Sir J. J. School of Art, Bombay.

I.—Composition and Varieties of Ivory.

Ivory is a dental substance, placed by chemists between bone and horn: that variety which is distinguished by the decussating curved lines on the surface of the transverse section of the tusk is peculiar to the African and Asiatic elephants; but the tusks of the walrus, the narwhal, and the hippopotamus, and the teeth of the same animals, also furnish ivory. The tusks of the elephant furnish the chief supply of ivory. In the Great Exhibition of 1851 were a pair weighing 325 lbs. obtained from an animal killed near Lake Ngami, in South Africa: each tusk measured 8 feet 6 inches in length, and 22 inches in basal circumference. It is considered that the tusks deteriorate in length and quality by the domestication of the elephant. African tusks are preferred to the Indian as being denser in texture, and not so liable to turn yellow. The demand for ivory for knife-handles, billiard balls, keys of musical instruments, mathematical scales, chess-men, for inlaying, for thin plates for miniatures, for carving, and for various other purposes is so enormous, and the supply is so well maintained that surprise may well be felt that the noble race of animals which yield it has not long since become extinct, especially when we consider that the supply of small tusks annually used is so vast as to reduce the average weight of the whole to about 9 lbs. per tusk. Teeth under from 10 to 16 lbs. are called scrivelloes. A few years ago it was calculated that the consumption of ivory in Sheffield alone required the annual slaughter of 22,000 elephants. The collection of broken or shed tusks may somewhat mitigate the zeal of the hunter, and we may also refer to that remarkable source of ivory, which exists in Eastern Siberia and the Arctic marshes, where the tusks of the mammoth, and other animals, are collected in vast quantities, and sold under the name of Siberian or Fossil ivory, although they do not appear to have undergone that species of transmutation implied by the term fossil, but are as useful to the artist or manufacturer as recent ivory. It is not certain whether fossil ivory is imported into this country, although it is extensively used by the ivory-workers in Europe.

Regarding the elephant's tusk as ivory, properly so called, we may distinguish between African and Asiatic ivory, by the former being, when recently cut, of a mellow, warm, transparent tint, with scarcely any appearance of grain, in which state it is called transparent or green ivory; but as the oil dries up by exposure to the air, it becomes lighter in colour. Asiatic ivory, when newly cut, appears more like the African, which has been long exposed to the air, and tends to become yellow by exposure. The African variety has usually a closer texture, works harder, and takes a better polish than the Asiatic. The teeth, however, of both kinds vary greatly in quality and solidity, so that the choice by the purchaser is always hazardous; he is usually guided by the appearance of the rind, which should be smooth and free from cracks, and of the tip, where the rind is to a certain extent worn away, but it is not until the tusk is cut up that flaws, cracks, and imperfections can be detected. It occasionally happens that the musket ball of the huntsman, which failed to kill the animal, has become embedded in the tusk, and encrusted with a fresh deposit of bony matter, to the great injury of the ivory. Gold and silver bullets have on a few rare occasions been found, showing that the shot was fired by royal hands.

The tusk or tooth, as it is generally called, is usually solid for about half its length, circular or elliptical in section, and free from vessels, or pores such as occur in bone; and although containing a large proportion of lime, it has none of the harsh, meagre character of bone, but admits of exquisite smoothness, and displays all the niceties of the turners' and carvers' art in the slenderest proportions.

II.—Peculiarities and Methods of cutting Ivory.

Much judgment is required in cutting up a tooth so as to apportion the various parts with economy. The ivory saw is a blade from 15 to 30 inches long, and about the fortieth of an inch thick, set in a steel frame and tightly stretched, so as to make a very straight cut. The outside strips or spills, as they are called, are used for the handles of penknives; the scraps are burnt for ivory black; and the clean shavings and saw-dust are used for making jelly or size. The mode of cutting up the tooth must of course depend on the uses to which it is to be applied, but in any case it is desirable to mark out the tooth in some way beforehand, and also to pencil out the end of the piece before the saw is used longitudinally. The ivory shrinks in the direction of the length of the tooth, as well as in the width, but much less in the former than in the latter direction. A billiard ball will vary in its diameters if used in a room of different temperature to that in which the ivory was kept, so that it is usual to turn the balls roughly to shape, and keep them for some months in the billiard room before the turning is completed.

The thin plates of ivory used for the keys of pianofortes, inlaying, and similar work, are usually cut from the solid block by means of a fine feather-edge veneer saw, in which case there is a considerable amount of saw-dust. The Russian method of cutting veneers spirally from a cylinder of wood, with a knife of the same length, has been also adopted for ivory, although in such case a reciprocating saw is used, and ivory-dust produced. Mons. Pape of Paris furnishes veneers of this kind as large as 30 by 150 inches, and he has veneered a pianoforte entirely with ivory, though the result was not pleasing. In the United States department of the Great Exhibition of 1851 was an ivory veneer 40 feet in length by 12 inches in width.

The following is a description of the method of turning bangles at Tando, Sind:—The piece of ivory is first peeled and made clean with a hatchet. It is then fixed in a wooden frame specially made for this purpose, the ends of the ivory piece being fastened to two pointed iron bars on each side of the frame, which is called *jandi*. The ivory piece is then turned with a wooden shaft attached to a portion of the frame, and is rounded with an instrument having a sharp end, called *karmno*. The piece is then smoothed with an instrument called *mathni* and

is marked into lines, round in shape, with an instrument called *baraki*. The lines so marked are then separated from the piece in different layers with an instrument called *chhino*. The first layer will bring out the largest bangles, the second layer smaller ones, and so on, the bangle of each layer being snatched up with the aid of an instrument called *putho*. Lastly, the sides of the bangles are smoothed with an instrument called *kimdho*.

It will be seen that the method here pursued is much slower and more crude than that practised in Europe, and that a greater waste of material takes place, no use apparently being made of the small chips and saw-dust. The consequence is that the advantage possessed by the Indian workman in the cheapness of his living and labour over his European fellow-workman is neutralized, and whenever they come into competition the Indian workman goes to the wall.

III.—The Dyeing, Bleaching, and Restoration of Ivory.

Ivory may be dyed in various colours. The crimson red colour commonly seen is given by dipping the ivory for a short time into a mordant of nitro-muriate of tin, and then plunging it into a bath of Brazil wood, cochineal, or a mixture of those substances. A scarlet tint is produced by lac dye, and if the scarlet ivory be plunged into a solution of potash, it changes to cherry red. A yellow dye may be produced by giving the ivory the tin mordant and digesting it at a gentle heat in a clear decoction of fustic. A black dye may be given by boiling the ivory in a strained decoction of logwood, and then steeping it in a solution of red sulphate, or red acetate of iron. In dyeing ivory the surface should not be polished until the dye is set. As soon as the ivory is taken out of the hot-dye bath, it should be plunged in cold water to prevent the chance of cracking; and should the dye appear in dark spots or patches, they should be rubbed down with chalk, and the ivory be dyed once more.

When ivory has become discoloured it is not easy to bleach it. Some recommend that it be scrubbed with sand and water, but this is evidently inapplicable to works delicately carved by hand or at the lathe. Articles in ivory, which have suffered partial decomposition by exposure to air and moisture, have been restored by boiling them in a solution of gelatine. Such was the case with some works in ivory sent from Nineveh to England by the late Sir Henry Austin Layard. They were in a state of decomposition, and the method of restoring them was suggested by Professor Owen. An attempt has been made to render ivory flexible by removing a portion of its lime by the action of hydrochloric acid. This plan has been adopted by a surgical instrument maker, M. Charriere of Paris, who first gives the pieces of ivory their required form and polish, then steeps them in dilute acid, until they have become supple and elastic, after which they are taken out and dried, when they again become hard, but the flexibility can be restored by surrounding the ivory instruments with wet linen, or by placing wet sponges in the cavities of the pieces.

IV.—Ivory Carving and the principal objects for which Ivory is used.

In India ivory has been used since the earliest times for the production of useful and ornamental objects. Articles made from a single piece have necessarily been limited in size to the width and length of the tusk, therefore ivory drinking cups and large vessels intended to hold liquid are rarely met with. The principal objects cut from solid ivory are small round boxes for holding powder or sweetmeats, the handles of swords, daggers and knives, brushes and combs, small figures, balls, chessmen, buttons, &c.

Large articles are either built up from numerous small pieces jointed together, or are firstly made of wood which is cased or sheathed with plates of ivory fixed with cement or by means of rivets. On Plate 87 are specimens of ivory built up entirely of small pieces of ivory jointed together at each angle, while the top is carved from a solid piece. These specimens are from the collection in the Museum of the Bombay School of Art, and were made at Bhúj. They are some of the best examples of the art of ivory carving produced in Western India that have come under the author's notice. It must be confessed that compared with the work produced during the middle ages in Europe and in Japan before 1860, the old Indian work is childish in its technique and poor in design. It has none of the exquisite feeling and beauty of workmanship of the former, nor the complete craftsmanship, humour and insight of the latter. As the Indian workmanship has since steadily deteriorated, its exhibition upon ivory certainly does not justify the slaughter of the intelligent animals who produce it; in fact, the crude and incoherent scratchings of modern workers would not be so glaring in their incompetence, nor so obviously misplaced were they practised upon ordinary bone instead of upon this more precious material.

V.—Of the Technique of Ivory Carving.

Ivory has an extremely hard surface and is very brittle and at the same time is close-grained. It is therefore in many respects an ideal material for use in the lathe where the turner knows his business, but in carving it has to be treated very differently from wood. Being so extremely hard and brittle it is necessary, in order to carve it, to render it softer, by artificial means while the work is being carried on, but at the same time not to permanently alter its character.

In order to effect this, the ivory is wrapped in wet cloths, in which it is allowed to remain for several days, the cloths being continually re-damped. When this period has passed the ivory will be in the desired condition for carving, and will be found to cut with a consistency more like the softness of cheese or wax than the brittleness of bone. All the deep parts of the background are drilled out to the required depths with small drills such as are used by goldsmiths, set in a revolving handle to which motion is given by means of a bow worked with the operator's right hand, while the drill handle is held with his left. The fretted portions of the design, if such there be, are also first drilled through, and then cut into shape with a small fret-saw. In consequence of the natural brittleness of ivory, great care and judgment have to be exercised in deciding the sequence of the work when parts are fretted and parts carved in order to prevent the former parts from breaking away under the inevitable strain of the carver's tool. There is a modern tool which has been adapted to ivory carving in England by

Professor Herkomer, R.A., and which the author has also used. It is the small revolving burr or drill upon a flexible shaft, used by dentists for preparing teeth for stopping, worked either by the foot or by an electric motor. The great speed at which it works, between 3,000 and 4,000 revolutions a minute, reduces the amount of pressure necessary to obtain a cut to a minimum, and the great variety of drills, from those measuring one-eighth of an inch in diameter to those with points as fine as a needle, enable the operator to obtain not only all the effects possible with a graver and chisel, but many, especially in the way of under-cutting, quite out of the range of those tools. When this machine is worked by an electric motor, which gives it a steady speed of over 4,000 revolutions, not easily conveyed by a foot treadle, it is an ideal implement in the artist's hand for ivory carving, and is infinitely more expeditious than any of the older methods.

VI.—The present centres of Ivory Work and condition of the Industry in Western India.

Ivory carving in Western India cannot now be said to exist at all as an industry. Inquiry in nearly every Collectorate, district, and large town in the Bombay Presidency elicited the information that only in those named below is any trade in ivory goods carried on, and in each the demand is purely local. In none can the work be dignified by the title of carving as the accounts which follow will amply testify.

Hála.—In Hála there is a certain amount of ivory working, and a good idea of the local skill can be obtained at a shop in Hyderabad. The owner, Asharandass, a Sindhi Bania, has a small Rája's car drawn by two bullocks on a stand. He did not know where it had come from, as he had bought it, but he believed it must have come from Jaipur. This is mentioned chiefly to draw a contrast between it and his own work. The bullocks are very good in modelling and in proportion; they are about 3½ inches long and are not conventional in execution, but are evidently an attempt to reproduce nature, probably from the artist's memory and not from a living object. The Sindhi carver, on the other hand, when not copying, restricted himself to fashioning purely conventional representations of birds or animals suggesting monkeys or storks, upon the tops of penholders and implements like paper-knives, but used it is said for smoothing the hair on the temples under the turban. In another shop, that of Isar, the end of an ear-cleaner was fashioned roughly into a human hand, showing a somewhat higher degree of skill than the monkeys or storks. Similar wares are to be seen in Tando Alahyar. Both Banias, Isar and Asharandass, seem to take their ideas from foreign objects of a much higher order of work, some of which they had actually copied, and not from nature, as there are no monkeys in Sind. A few other Sindhi workmen appear to know these patterns and reproduce them from memory. Besides the bullock-car which he had not attempted to copy, Asharandass had made accurate copies of two figures of men dressed like English Puritans, but the work was quite simple, and the execution about as good as that of the figures in a child's Noah's ark.

In Tando Alahyar very pretty ornamented hair-smoothers were formerly made, but the industry has died out. A workman here was recently asked to make a Hindu idol, and about three weeks later, he produced a figure on a stand, about 4 inches high, of a man holding an umbrella above his head, with a dog at his feet. He wore a kind of Henry VIII hat, and a coat drawn in by a belt and reaching his knees. The figure was one inch through at the deepest part. The work was very plain and the arm not holding the umbrella was akimbo, and had been hollowed away to an absurd extent through unskilfulness. As the whole thing was carved in several pieces, the man, the dog, and the umbrella were detachable. The eyes and lips of the man were coloured very coarsely. Where the workman got his pattern from, or whether he evolved it from his memory, does not appear. The demand for ivory carving is at present so small, that it is doubtful if a really good workman could get a living, but whether the poor demand is in consequence of the inferior quality of the work or *vice versâ*, is difficult to decide. Coloured and dyed ivory is produced in Hyderabad; and Gangu Sindhi, Bania, makes imitations of red chillies with green stalks, certain bulbous vegetables dyed green, and flowers dyed red, which are however not copied from nature. The red dye was extracted from babul trees, the green was imported; whether they were "fast" was not ascertainable. The rest of the work in this division is turned on the lathe. The ivory worker's chief business is in plain armlets, and any carving of figures is more an amusement than business. A certain Nur Mahomedshah of Hála turns small plain studs, in the heads of which he puts glass beads, and also turns neat egg-cup-like objects with lids. These he ornaments with a simple but pretty wreath-like device in red and black. The men referred to above are the only ones known to carve in ivory, but a very considerable trade is done in the plain armlets, there being numerous ivory shops in all towns of any size, whose sole business is the production of these rings. The women cover their arms with them till they look as though they were encased in ivory.

Kánara.—There is no such industry as "ivory carving" regularly carried on in this district. There are, however, a few "Gudgars" whose chief calling is carving on sandalwood and painting, who at times carve ivory also. They are found in Kumta, Banvási, Siddápur, Bilgi, and a few other places in this district. They generally work on ivory, to order, and seldom offer articles for sale, except such as have been condemned by the person who ordered them. The articles made are generally small boxes, combs, sets of chessmen, images, paper-cutters, card-cases and other fancy articles. Ivory is not commonly to be had in this district. It is imported from Bombay or Mysore. It generally costs from Rs.2 to Rs.4 for a seer of 24 tolas, and when worked upon, the articles are sold for an amount varying from Rs.10 to Rs.50, according to workmanship.

Karáchi.—Ivory carving in this division is carried on in the town of Sehwán only. The trade consists almost entirely in the manufacture of sets of plain arm rings called "Bahin" when they are full-sized and "Gabha" when they are for children.

Poona.—The following is an account of the founding of the ivory industry of Poona:—Savai Madhavrao Peshwa (1780–1795), a youth whom Nana Fadnavis' restraints drove to suicide, found in the sacred books a law against Brahmin women using metal hair-combs. It was therefore decreed that combs should be of ivory. To supply the demand for ivory combs which sprang up in consequence, one Audutrao Dhandarpalkar came from Násik and opened the first ivory comb factory in Poona city. His example was followed by Abaji Ava of the carpenter caste. The family of Audutrao cannot be traced and is said to have died out. The original carpenters

have also left Poona and again taken to wood-cutting. The present ivory comb makers are the descendants of the Kunbi servants of the original workers. They number about fifteen and keep five workshops opposite the temple of Ganpati in Kasba ward. They are a quick people, speak Maráthi, live in their own one-storeyed houses, occasionally eat flesh and dress like ordinary Kunbi Maráthas. Comb-making is easy to learn. Many Kunbis would have taken to the craft, if it had offered a fair chance of making a living, but for many years, owing to the competition of cheap foreign bone combs, the industry has been depressed. Within the last ten years four shops have been closed, and those workmen who are left, though above want, are poor. The present small ivory comb industry will probably continue, unless it is killed by the importation of European ivory goods. Bráhmin and other high caste Hindu women think bone combs impure, and three ivory combs always form part of the *vayan* or bride's outfit.

Comb-makers work from seven to eleven and from two to sunset. Their women and children give them no help. During the marriage season between October and May, the demand is brisk, and sometimes one or two assistants are employed in doing the rougher parts of the work. The assistant is paid Rs.4 to Rs.7 a month according to the nature and quality of his work. The average monthly income of a comb-maker varies from Rs.15 to Rs.22½. As ivory is very costly, ranging from about 8*s.* to 11*s.* the pound (Rs.150–200 the 38 lbs. *man*), the money required for buying it has to be borrowed. The usual rate of interest paid is 1 per cent a month. The advances are generally made by a moneylender named Jipa Márwári, in whose hands the whole industry practically lies. In addition to interest he charges 1¼ to 1½ per cent as commission on the ivory he brings from Bombay. The workmen have to sell the articles they make on their own account and to pay the standing balance, including interest and commission, to the Márwári moneylender. What they are able to keep back is just sufficient to maintain themselves and their families. All are indebted to the Márwári. The appliances of a comb-maker are similar to those of an ordinary carpenter, only a little finer. Each shop requires five to six saws of different sizes worth 9 to 12 annas; half a dozen files worth 6 to 7½ annas; four or five borers worth 3 annas each; half a dozen vices each worth Rs.7½ to Rs.22½; a *vâkas* or adze worth Rs.1½; a *khatávne* worth 1½ annas; and a pair of compasses worth 6 annas.

When the ivory is brought from the Márwári's shop, after he has weighed it and entered the price in his account-book, it is steeped in water for two or three days. It is then cut into pieces of the required size and sawn through, keeping it vertical by holding it in the vice. It is then filed, rubbed and polished. Sometimes the ends and sides are decorated with carvings, and the plain surface is broken by tracing on it a few curved and straight lines. Combs for the use of women are rectangular, and have a double set of teeth, while men's combs are crescent shaped and have only one set of teeth. The small pieces of ivory left over in cutting out pieces for combs are used in making dice. The price of a comb ranges from 6 annas to Rs.1½, according to the size, thickness and workmanship of each. The combs and dice are sold in the workshops by the workers on their own account. Their only customers are high class Hindus. Other classes use either wood combs or foreign horn combs.

To this account it is only necessary to add that the ivory used in the industry is brought from Bombay, and costs Rs.12 to Rs.15 per seer. Nowhere else in this district is ivory carving to be discovered. The economical reforms and changes which the Indian hand industries have undergone by virtue of their having been brought into close contact with the more efficient industrial system of Europe, have, it is clear, in this case as in many others, reduced to a state bordering on extinction the hand manufacture of ivory combs in the Poona city. We have not perhaps any great cause to deplore the substitution of machine-made for hand-made combs, inasmuch as the former must necessarily be considerably cheaper, while it is doubtful whether the latter possess sufficient artistic superiority to counterbalance this obvious advantage. It is presumed that the scruples against the use of combs made of bone have long ago been met by the introduction of machine-made combs of ivory which are a common article of trade in this country.

SURAT.—In Surat no great demand exists for work in ivory, in consequence of such articles, whether for use or for ornament, being sold at higher prices than imported goods of a superior class. A small trade in such articles as are made is carried on with Bombay and Madras.

The principal items of manufacture are bangles of ivory, which are turned in different sizes, though the shape is the same for all. This is done on an ordinary wooden lathe, when they are either coloured deep red or are covered outside with thin sheets of gold or silver. The former are worn by women of almost all the lower classes of Hindus only. The prices of such bangles vary from Rs.5 to Rs.15, if simply made of ivory; but when covered with gold or silver, the prices exceed these in accordance with the quality and quantity of metal used.

There are a few *Hinghratia* or ornamental boxes used for preserving *Kankoo*, a mixture of turmeric and carbonate of soda, or vermilion invariably employed by natives—especially the women—when engaged in sacred duties or marriage festivals. It is applied in a wet or dry condition to the arms, chest, ears and foreheads by means of the fingers or small round sticks. Even on ordinary days, women of almost all classes have *Chanlas* or small red circular spots or marks in the middle of their foreheads, which are not only taken as signs of good omen, but are considered to add to the beauty of their faces. This practice is, however, only followed by married or unmarried ladies and girls, while it is prohibited altogether to widows.

Snuff-boxes, buttons, dice (of different sizes), combs for dressing hair, paper-knives, English alphabets, small pictures carved in relief and ribbons for carved sandalwood boxes, &c., are also prepared from ivory. Some of the vegetable products are represented in a crude manner in ivory, no fixed price being charged, but depending upon the time and quality of the workmanship of the articles prepared.

In no other town or district in the Bombay Presidency is there any ivory carving practised. The industry may be considered, therefore, as approaching extinction, a result which will be hastened by the discovery in Europe of several artificial substitutes for ivory, which are free from some of the drawbacks found in that material. There is no prospect of a revival of the present industry, but every likelihood of its more or less speedy death.

IVORY CARVING IN ASSAM.

By JAMES DONALD, Esq., Assistant Commissioner, Golaghat.

Once an important art in the days of the Ahom rajas, ivory carving has, since Assam came under British rule, gradually declined. In those past times the industry throve; the workers, patronised by the rajas and leading men of the court, received, as a return for their work, free grants of land and labour. In consideration for these privileges, a special class of workers, known as Khanikars, worked solely for the rajas. This would seem to indicate that the work in those days was much valued. Coming to a more recent period, we read as follows in Sir W. W. Hunter's Statistical Account of Assam, published in 1879:

"Another speciality of Sylhet manufacture is ivory-ware, the carvers of which are characterised by much ingenuity and taste. Their work consists of ivory mats, which are sold at from £20 to £60 each, fans from £1-12 to £2-10, sticks from £1-12 to £2, chessmen from £3 to £5 a set, dice from 3/- to 6/- a set, and *gutis* (the pegs which pass between the great toe and the toe next to it to prevent the sandal from slipping off the foot) from 2/- to 3/- per pair."

As regards the Assam Valley, the only mention made by him of the industry is that in which he states that the industry is non-existent in Lakhimpur. In 1891, the census showed 4 ivory carvers in the whole of Assam,—3 in Kamrup, 1 in Sibsagar,—while the Deputy Commissioner of Sylhet now states—"Ivory carving is a practically extinct art now in Sylhet." Bringing the information up to date, we might safely say that there is but one man in the whole of Assam whose occupation can be described as "Ivory carver,"—Fiznur, Mussalman, of Jorhat. From an important flourishing and honourable industry, it has, in the space of 70 to 80 years, been reduced to the work of one man, and that spasmodic. To what causes then are we to attribute this decline?

The demand in the past must have almost entirely been supplied by the rajas. The demand was, however, sufficient to occupy under one raja the full time of some 40 men. But could it be said that with the disappearance of the rajas the demand entirely ceased? I doubt it. Was there then no scope for the ivory carver's abilities? Here the Assamese character asserted itself. Under the rajas the work was not altogether an optional one. There was a compulsory element. Care was taken to see that each man was kept busy at his trade, while at the same time the means of livelihood was certain. With the disappearance, however, of the rajas these influences ceased. The carvers, who had land and capital, settled down principally to a life of agriculture—a life involving little labour on their part, yet ensuring a comfortable living. Not pressed by want, or compelled by force, to earn his livelihood, the ivory carver took no steps to push his industry, or to create a demand. An occasional order for an article in ivory would be executed generally at a profit so considerable that the worker could afford to lay aside his tools for some time before undertaking another commission. What was the result of this? What was spasmodic in the parent became despised by the child; he saw in it merely a secondary means of livelihood, demanding long and much perseverance, with no immediate prospect of prosperity. Their inclinations, if of good family, tended, as in the case of the son of Fiznur, the well-known carver in Jorhat, towards an office stool.

Another cause, which has led to the decline of the industry, is the "ivory" itself. The rajas themselves used to have a large number of elephants, and from these, as well as from wild elephants killed, an ample supply of ivory was obtained. But with the introduction of the Elephant Preservation Act and its extension to the hills districts, ivory is at the present time rarely procurable. It is occasionally obtained from the owners of dead elephants, or from the tusks of dead elephants found in the jungle, brought to headquarters and sold. The purchasers in the latter case are, however, generally Marwaris or Kayas, who send the tusks to Calcutta for sale at a profit. Abors and Nagas kill wild elephants beyond the Inner Line, and the tusks they sell to Marwaris in Dibrugarh. This, too, is generally exported, except for an occasional demand by an ivory carver. But even these exports are very small, as the trade returns show, and have been gradually declining, being 17 maunds in 1897-98, and 1 maund in 1898-99. It might thus seem almost superfluous to enter into any detailed description of the work of the ivory carver in Assam. We have found but one man whose occupation can be described as "ivory carver," but there are others who, while dependent for their living on other occupations, still possess a knowledge of the art. In the case of all, however, the work is spasmodic, and generally dependent on occasional orders received—generally from Europeans—which orders they do not always take the trouble to execute. The ivory carver in Sylhet (his principal occupation is that of goldsmith), whose speciality is fans, has received but one order for fans during the last ten years. No other orders has he received either from Europeans or Natives. And the others are in a similar position, although in the case of one or two more frequent demands have been made for their work.

The number of persons in Assam, who are acquainted with ivory carving, may be roughly put down at fifty. Of these, about forty depend for their living on agriculture, while the others have become carpenters or brass-workers. The industry has been at no time confined to any particular caste, the old class of Khanikars being composed of both Hindus and Mussalmans. The surviving representative of the Khanikar class is Fiznur, Mussalman, of Jorhat, whose family possessed the title of Khanikar Boroja—a title given by the Ahom rajas as signifying special knowledge in ivory carving. Of these fifty carvers, about forty reside in Goalpara, depending mostly on agriculture for their living; six in Manipur, whose general work is carpentry or brass-work; two in Kamrup, and two in Dibrugarh, also engaged in carpentry; one in Sylhet, a goldsmith, and one in Jorhat. As regards the work of carving, there is little that calls for remark. The ivory as procured in generally in a fit state for carving at once. In some places it is put in boiling water and milk before it is cut up, while in Manipur it is cut up and then put in the shade for a considerable time until thoroughly dry. The tools used for carving are practically the same as used in wood carving,—saws, chisels, and borers of various sizes, used according to the nature of the work. Tools, both of European or native manufacture, are equally used. For the final polish there are various articles. There is, of course, sand-paper (*siris kagoj*), the use of which is general. The scales of the *pithia* fish is also used, this fish is not in great request or favour as an eatable, but its large scales are very useful

for polishing purposes. In Manipur the leaf of the "Heitmana," or jungly fig, is employed; the surface of this leaf is very rough, and acts as a fine sand-paper. Husks of paddy and leaves of the jack trees are also used, but to a small extent.

The nature of the articles turned out depends on the demand. Practically, the whole of the work done is the result of special orders, and generally any article ordered can be executed. The representative of the industry in Sylhet makes a speciality of fans, while the Jorhat worker has a preference for salad spoons and forks and back-scratchers. The latter carver, however, confines himself slavishly to these three articles, and will not execute orders for other than these. Small boxes, paper-knives, dice, chessmen, combs, handles for knives, umbrellas, etc., bracelets, rings, and models of animals represent the general nature of the work.

In these articles there is generally some ornamentation. Figures of animals, as elephants and fish, and drawings of creepers and flowers, are common objects of ornamentation. Rubies and emeralds of a cheap nature adorn many articles, as spoons, forks and bracelets, and are used for eyes in the case of animals. Silver, gold, and brass, too, are occasionally employed. In Fiznur's case, there is little or no variety in the ornamentation.

The value of the ivory in its original state varies according to quality. Good ivory generally fetches from Rs.12 to Rs.15 per seer, while inferior ivory may not fetch more than Rs.5. In the Garo Hills any ivory found or brought in is sold to a contractor at a fixed rate of Rs.9, good and bad. The ivory exported to Calcutta and sold there generally fetches a much higher figure.

The value of the finished article depends (1) on the amount of ivory required, (2) the value of the ornamentation, (3) the time required to carve the article. The ornamentation generally amounts to a very small proportion of the final cost, rubies used being worth but Re.1 per hundred. For his labour the ivory carver generally charges Re.1 per day. To illustrate this, we may take the salad fork and spoon, the work in which the Jorhat carver excels. The ivory required in this will cost from Rs.20 to Rs.24. The rubies used in its ornamentation would cost Rs.5 to Rs.12; (this figure seems to me rather high, and the carver, I think, must make a considerable profit on this). The sale price of the fork and spoon varies from Rs.30 to Rs.50. Taking his value of the stones, this gives him on the average a sum of Rs.14-8 for his labour, which in this case covers a period of 13 to 15 days. A day's labour, however, covers but few hours.

There remains little more to be said. Ivory carving once flourished because nurtured, and, as I have pointed out, because not altogether an optional industry. It decayed when both these influences ceased. It has now reached the point of extinction, not so much because there is no demand, but rather because the workers, from want of energy or material, have so hidden their talents, that but few know of their existence.

IVORY CARVING IN BURMA.

By H. S. PRATT, Esq., I.C.S.

The origin of the ivory carving industry in Burma is wrapped in obscurity. The ivory carvers of that town assert that Moulmein was the first town in Burma in which carving in ivory was practised, and one of them, Saya Ko Shwe Ko, who still plies his craft, claims to have been the first exponent of the art. He commenced working in ivory about 30 years ago at the request of some Shan timber traders from Kado, who were desirous of having images of Buddha carved from tusks in their possession. Although he professes to have been self-taught, it is improbable that he evolved the art entirely from his own brain without any models to guide him. The descendants of a well-known rival of his (Saya Nyein) who died some years ago, trace their craft back to their uncle, which would tend to show that ivory carving has been practised in Moulmein for a longer period than thirty years. At Pyinmana ivory carving, though in a cruder form than in Moulmein, is known to have been practised before the annexation.

It is related in the Buddhist legends how, in one of his existences, Gautama Buddha took the form of an elephant and was known as Sattan Sin Min. His consort, Sula Batta, being under the impression that she was slighted by her lord, prayed that in her next existence she might have vengeance upon him. In course of time she passed into another existence and became Chief Queen of the King of Benares. To heal her of an illness, which she feigned, she caused it to be declared imperative that she should wear an ivory earring. A celebrated hunter, Thawnuttaya, was accordingly despatched and succeeded in obtaining the tusks of Sattan. From that time forth working in ivory came into vogue.

Another legend narrates that in 470 B.E. Along Cithu, King of Pagan, on his return from a journey to Ceylon and various parts of India, saw a huge white object near the sea-shore. On approaching he perceived it to be a mound of ivory, which a gigantic centipede had erected for its residence. Such was the size and strength of the monster that it was in the habit of catching and devouring elephants, the tusks of which it used to form a wall around its place of abode. Taking advantage of the opportunity when the centipede was away in search of food, the king carried off the tusks and had them carved into images to add to the attractions of his palace. The legitimate inference from these traditions would seem to be that the Burmese have long been familiar with working in ivory, and that it was introduced from India.

So far as can be ascertained, the only towns in which ivory carving is now practised are Moulmein and Pyinmana. The art formerly had a footing in Rangoon, but the only remaining carver known has ceased to exercise his profession, and when an order is placed with him, engages a workman from Moulmein. It is supposed that most of the other carvers have left Rangoon for Moulmein, where the occupation is more remunerative, or adopted other professions.

At Pyinmana, though ivory is procured without difficulty, owing to the large number of elephants in the neighbourhood, it is reported that there is only one ivory carver worthy of the name. The industry there is stationary and is said to have been in the same condition before the annexation. Some of the work is fairly good, but is not to be compared with that done in Moulmein. The latter town may therefore be said to be the centre of the ivory carving industry in Burma, and even there it is not practised on a large scale, three families only being engaged in the art.

The industry has been aptly compared to our English cottage industries, affording a pleasant livelihood and giving a sufficient income without unduly hard work. The craft is handed down from father to son and reminds one somewhat of the conditions that prevailed in mediæval times. The craftsmen and apprentices are grouped round a master, under whom they work and who gives his name to their productions. The art is rigidly confined to these groups, and every precaution is taken to prevent outsiders gaining a knowledge of the craft and adopting it as a profession. Given the requisite natural aptitude, an ivory carver can be trained in three years.

Prospects of Development.—There are no signs of any immediate expansion of the industry, and those engaged therein say that little or no carving is done as compared with ten or fifteen years ago. This statement is, however, in all probability an intentional exaggeration. The ivory carvers are very jealous of their profession and reluctant to give any details as to the method of working or the income obtained therefrom. Within certain limits the profits derived appear to rest almost entirely with the artist himself. It is believed that the ordinary income of a master-carver in Moulmein is about Rs.600 a year, but there is little doubt that he could considerably increase his earnings if he were so disposed. It is not, however, the way of the Burman to over-exert himself so long as he has sufficient to meet his needs, which are not great, and a slight surplus to devote to objects connected with his religion. Although the ivory carvers themselves say the demand for their work has fallen off in recent years, the report received from Moulmein shows that there has been a slight increase in the number of persons employed in the industry. All the carvers have as much work as they can do, in fact, almost more, and take a long time to execute orders, pleading press of work as an excuse for delay. There is thought to be ample scope for a considerable number of carvers in addition to those already employed. It is suggested that the opening of a school of art might give an impetus to the industry.

Influence of Imported Articles.—The proportions of the industry are so insignificant that it is not touched by foreign competition. Articles are not manufactured in anticipation of the demand, but solely to meet orders received. The only way in which imported articles exercise an influence is when purchasers order articles to be made according to western models.

Source of Materials.—At Pyinmana elephants are plentiful and there is no difficulty in obtaining as much ivory as is required. In Rangoon the small quantity required is procured usually through the agency of the ubiquitous Chinaman at a price varying from Rs.17 to Rs.22 per viss. In Moulmein the ivory is procured chiefly from Shan traders and occasionally from the local timber mills, or the Commissariat Department when an elephant

happens to die or break its tusks. The cost there is about Rs.17 a viss for small tusks, but is higher proportionately for large specimens. The price is said to have risen considerably in recent years. The total amount of ivory used in a year by the Moulmein ivory carvers may be estimated approximately at from eight to twelve pairs of tusks.

Method of Working.—The carver himself designs and draws his patterns, which are usually of the conventional Burmese type, unless copied from European models by the direction of the purchaser. Family patterns are preserved and handed down. The following account of the processes employed is based on the description given by an ex-ivory carver resident in Rangoon. The tusk is first cut to the required shape and size with a *da*, saw, or axe, as the case may be, and then smoothed by the application of a file. This done, the required design is sketched in pencil on the surface of the ivory. Holes are next made with a small gauge, which is hammered with a deer's antler when necessary. Particular stress is laid on the point that only deer antlers are used. Iron and wooden hammers are respectively too heavy and too light. If a wooden mallet is used in carving, being soft and light, it will not have the desired effect on the ivory. Iron hammers, on the other hand, being hard and heavy, there is great danger of the work being spoiled if they are used. When the requisite number of holes has been made the ivory is rough-carved according to the designs already sketched. The tools used in this operation are gauges, flat chisels, files and drills of different sizes. The next process is smooth carving. This requires great care and delicacy of touch. The instruments generally used are small chisels, files, drills and gauges. No mallet or hammer is used except when absolutely necessary. After the carving of the outer framework has thus been completed, the figure inside the casing (assuming that this style of work is chosen) is carved in the same way. When the whole carving has been completed to the satisfaction of the artist, and the finishing touches added, it is smoothed by the application of fine sand-paper. It is then given a polish by being rubbed with paddy-husk washed with soap, and finally dried in the sun.

This account conveys a very inadequate impression of the patience, skill, and delicacy of touch required to achieve the results attained by the artist. It is almost impossible to convey in words any idea of the way in which, with his small iron instruments, flattened and sharpened at the end, somewhat after the fashion of a miniature screw-driver, the carver chisels out the interior of a block of ivory into a figure, which is most faithfully and accurately portrayed to the smallest detail, and yet at the same time leaves it surrounded by a frame of open work, or causes it to join and blend with the encasing framework, and so combines the two with the most happy result, or again leaves an opening in the enclosing frame and discloses a sitting image of Buddha in a miniature shrine. The work must be seen to appreciate it fully.

Owing to the fragile nature of the materials used and the extreme care and delicate handling required, the apprentice is not allowed to use ivory for his first attempts. Till he has attained a certain degree of skill, the master gives him to practise with a cocoanut shell, which is more brittle than ivory, and therefore demands even more careful handling. When the master thinks that his pupil has attained sufficient proficiency, then only is he allowed to experiment with ivory.

Tools.—The instruments used are very simple and consist of *das*, saws, files, drills, chisels, clamps, and an axe for rough shaping large articles. Most of these are locally made, and those which are not made locally are purchased in the bazaar. The carver as a rule make his own clamps. The smaller chisels are said to be pieces of umbrella ribs sharpened on a stone.

Articles Manufactured.—The chief articles made are handles for *das*, knives and forks, and paper-knives. From big tusks boxes, picture-frames, and similar articles are carved. Chess-men, mats, chairs, &c., are also made to order. For Buddhist purchasers images of Gautama Buddha are carved. In Rangoon carved tripods for supporting bowls seem most popular. Whole tusks are frequently covered with carving for use as ornaments. One pair (of which, unfortunately, no photograph could be procured) was decorated with no less than 28 statues of Gautama, and gave employment to an experienced artist for between seven and ten months.

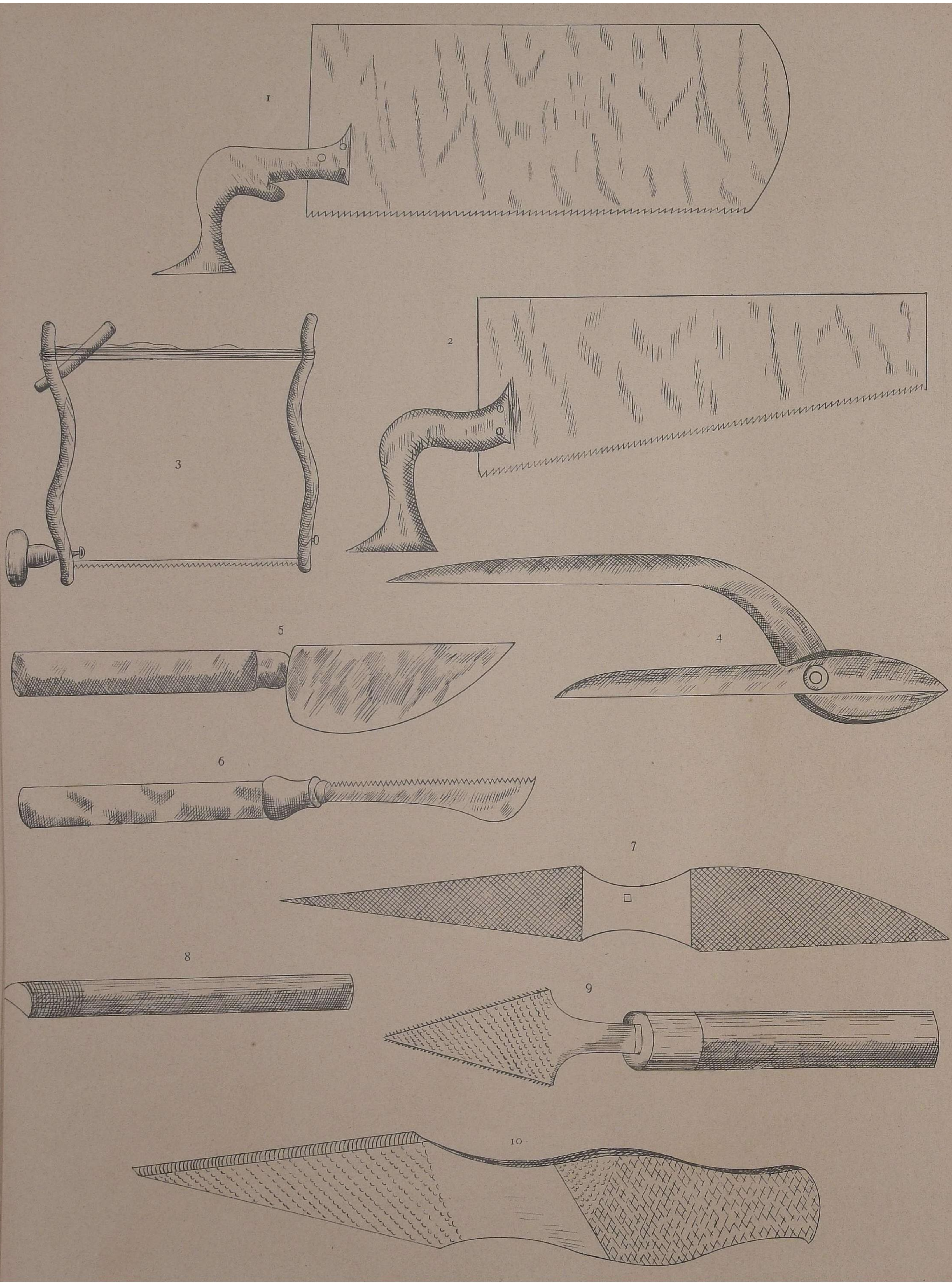
The Artistic Side.—The style of the carving is that known as Burmese. The figures are treated conventionally as in wood carving and silver work. Even where articles are made after European patterns, they are still executed in the conventional Burmese style. The scroll work and flowers do not call for special remark. Attention has already been drawn to the great skill displayed in carving the inner design, surrounded as it is by a casing of delicate tracery ; this is a favourite device, the figure within being quite distinct, although carved from the same block as thc outer envelope. Unfortunately this is but imperfectly reproduced in a photograph, and it is only by inspection of actual specimens of carving that the nature of the design can be fully realized.

In the absence of other ivory work there are no materials for instituting a comparison, and it is very difficult to accurately weigh the merits of Burmese ivory carving from the artistic point of view. The finish is possibly not so good as in Chinese and European carving, and the polish is probably less fine. There is a lack of originality in design, and little art in the creative sense is exhibited. If, however, art consists in accurate and succesful imitation, then in this sense it is displayed in a high degree.

It is in the skill and ability exhibited in the execution of the work, in spite of the comparatively simple instruments at the disposal of the artist, that the chief merit of Burmese ivory carving is undoubtedly to be found. Although originality and creative genius may not be conspicuous by their presence, the delicacy of touch, the close co-operation of hand and eye, the elaboration of detail, and the fidelity with which the design is reproduced, all contribute their share to the general artistic effect, and it is here especially that scope is given for the development of individual talent.

LIST OF ILLUSTRATIONS.

80, 81, 82. Tools. 83. Combs, Knives and *Surmadanis*. 84. Toys, and Chúrigars at work. 85. Furniture. 86. Comb, Paper Knives and Spoons. 87. Ivory Carving (Bhúj). 88. Burmese Ivory Carving.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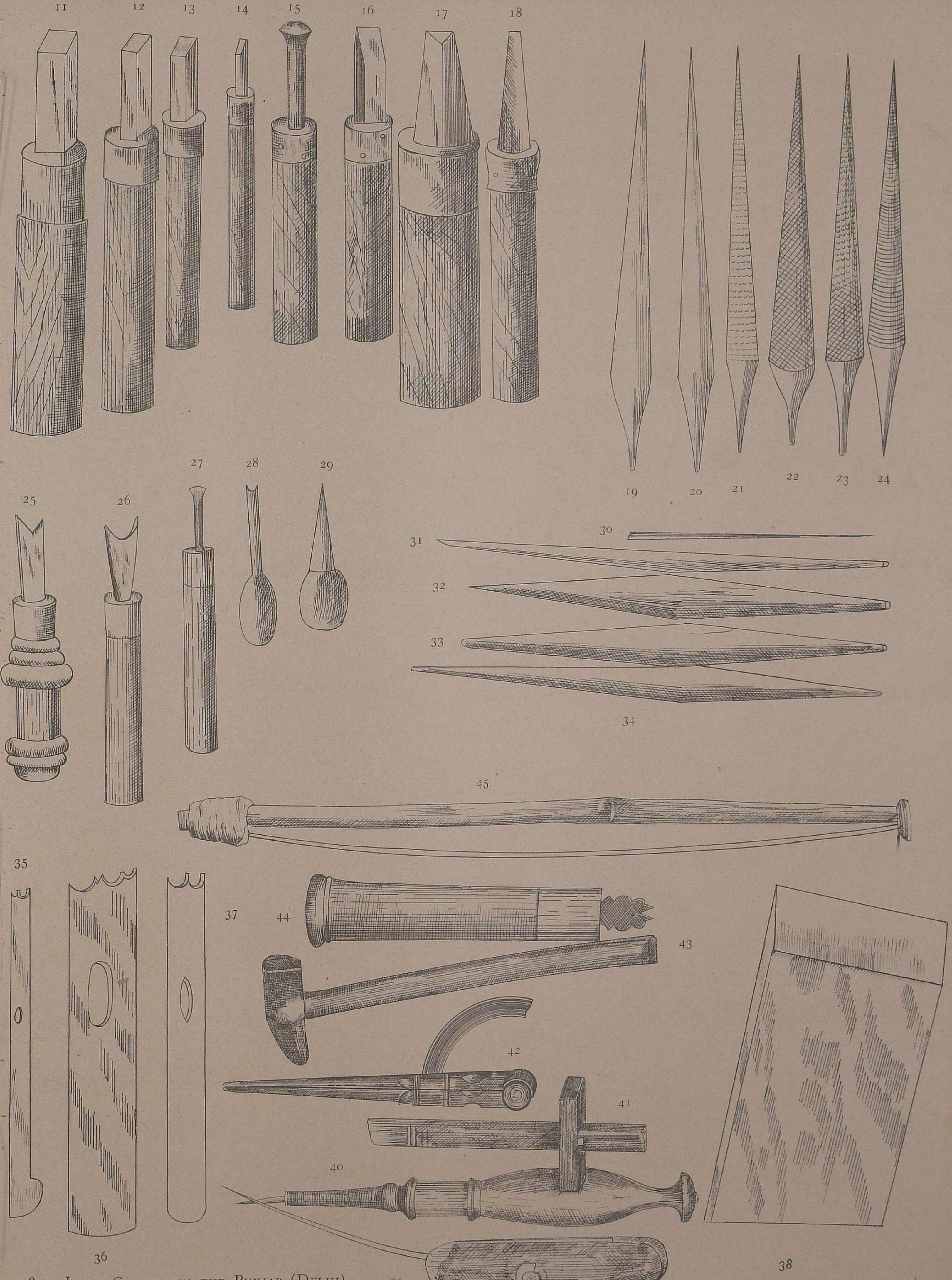
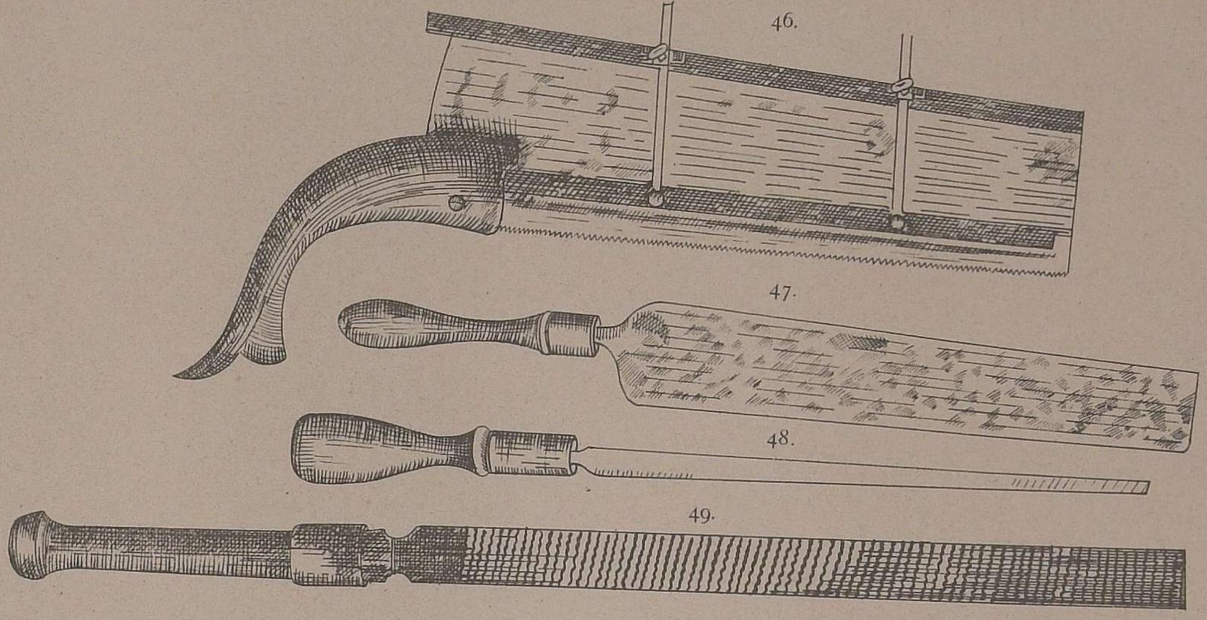


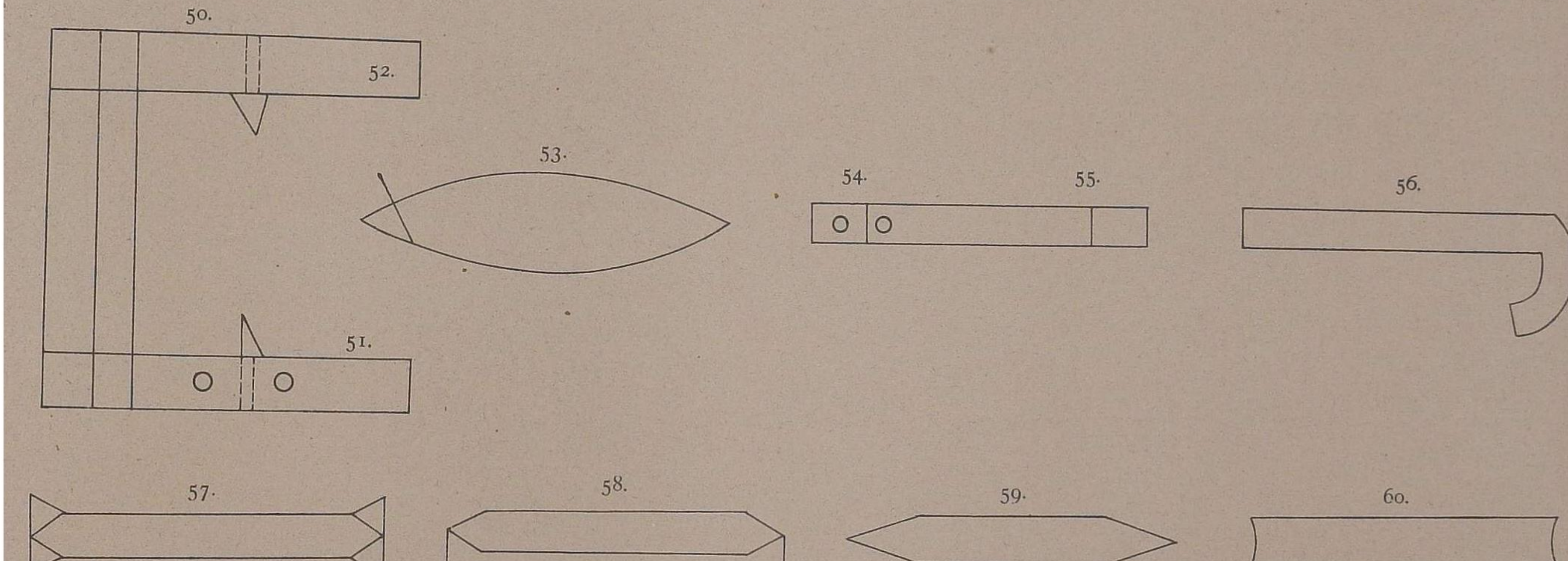
80.—Ivory Carving in the Punjab (Delhi).

1 to 45. Tools.



Tools used in Comb Making (Amritsar).

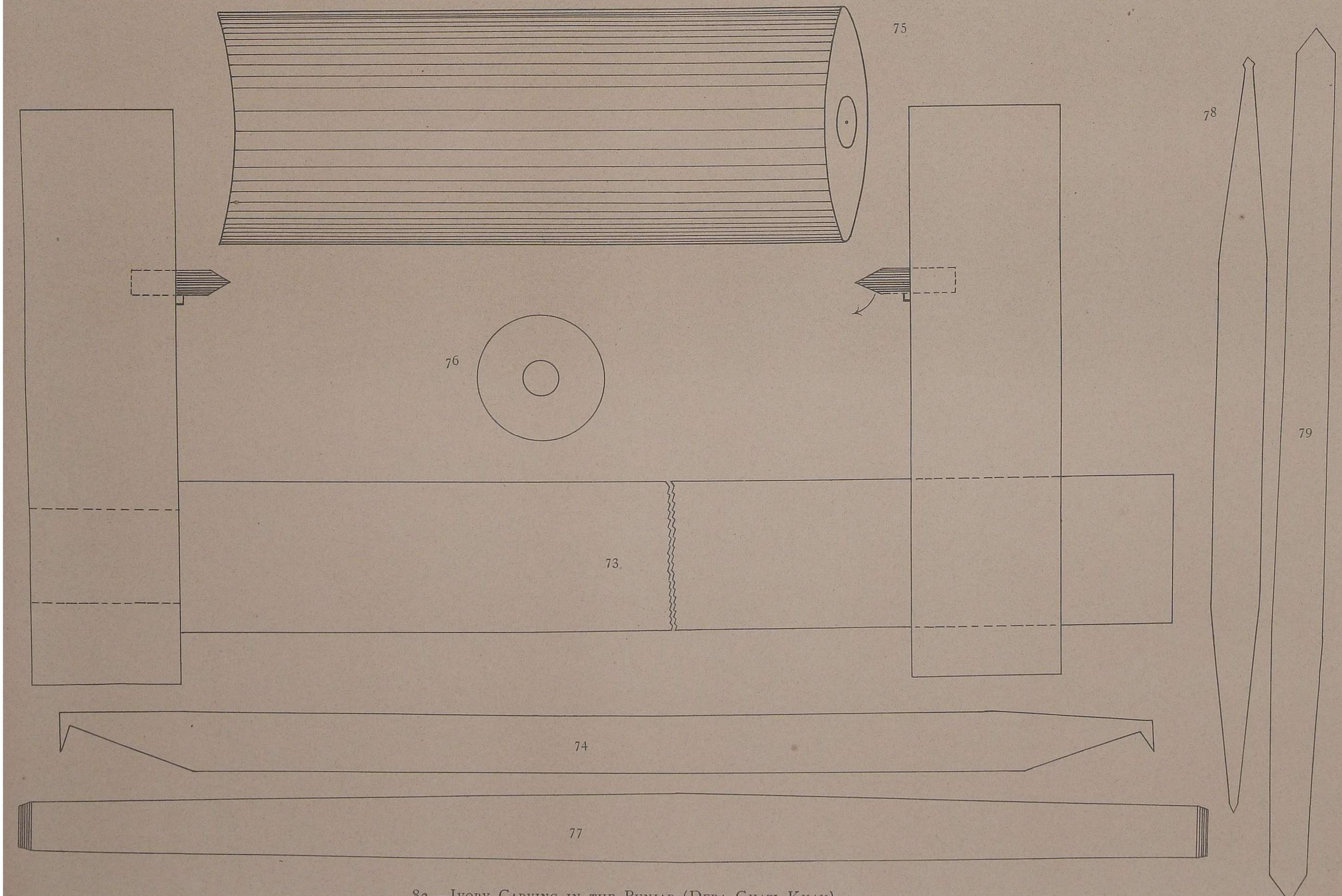
46. *Ari* or Saw. 47. *Patal*. 48. *Thasul*. 49. *Rethi*.



81.—Ivory Carving in the Punjab (Ludhiana).

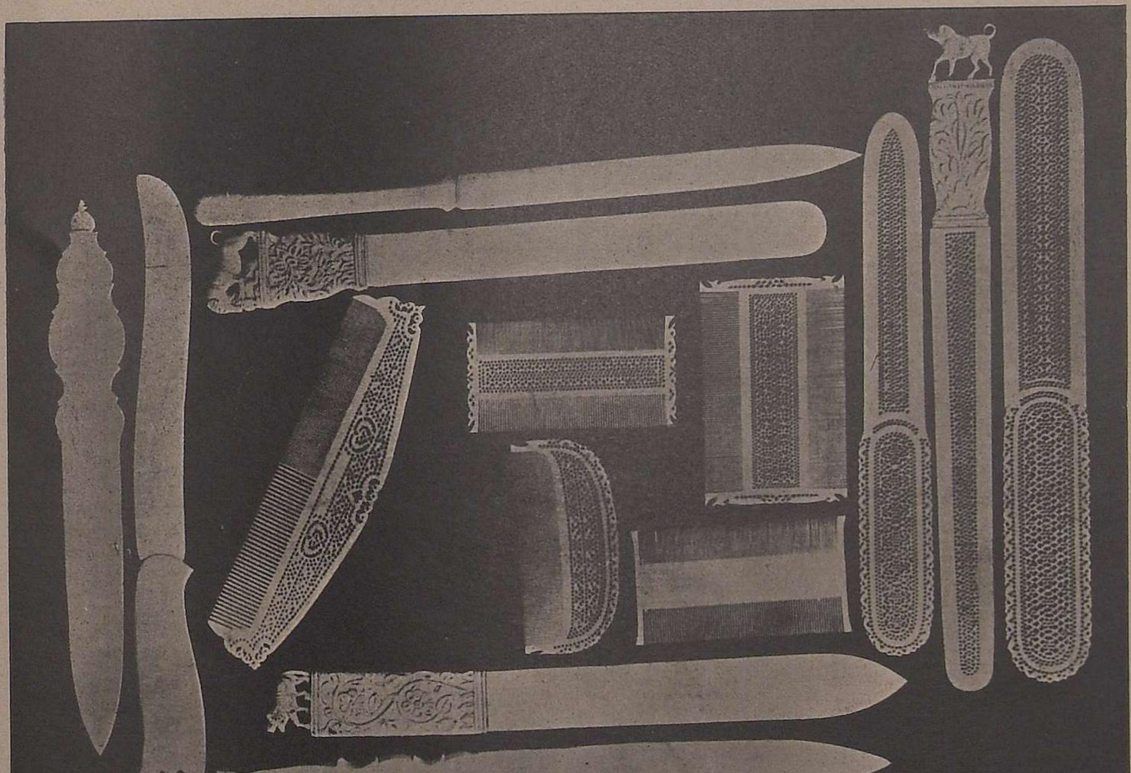
Turners' Tools.

50. *Jand*. 51. *Kanda*. 52. *Sua*. 53. *Kamâna*. 54. *Subbal*. 55. *Dhur*. 56. *Loha rach*. 57. *Mathni*. 58. *Singari*. 59. *Chírna*. 60. *Rangwata*. 61. *Kher*. 62. *Verma*. 63. *Kalbút*. 64. *Bambia*. 65. *Tíra*. 66. *Rachi*. 67. *Roda*. 68. *Tesha*. 69. *Ari*. 70. *Chari*. 71. *Rethi*. 72. *Tikera*.



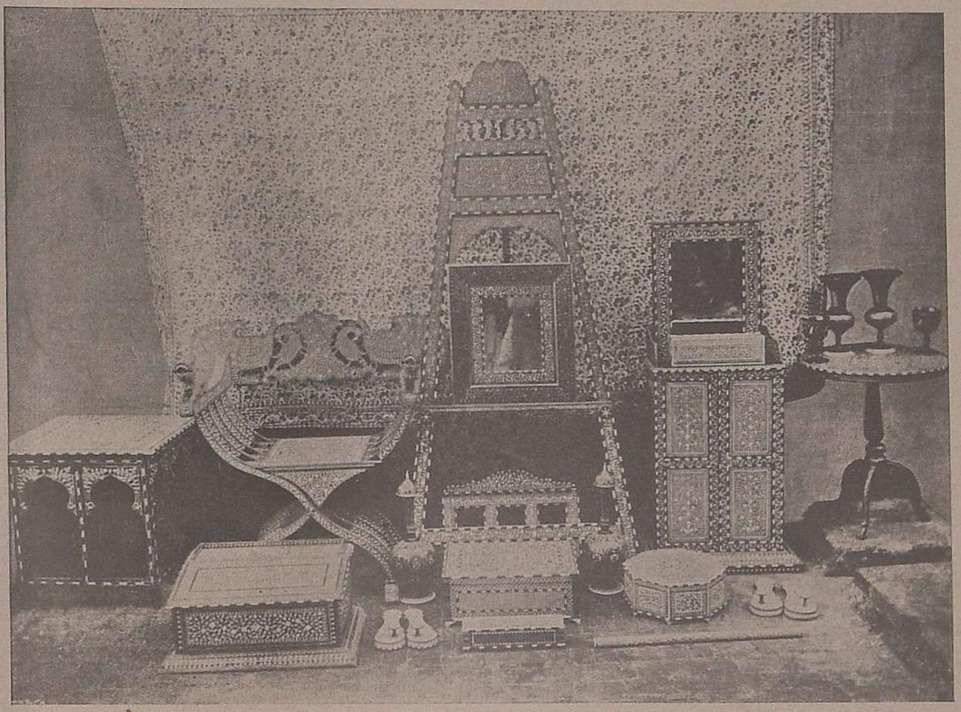
82.—Ivory Carving in the Punjab (Dera Ghazi Khan).

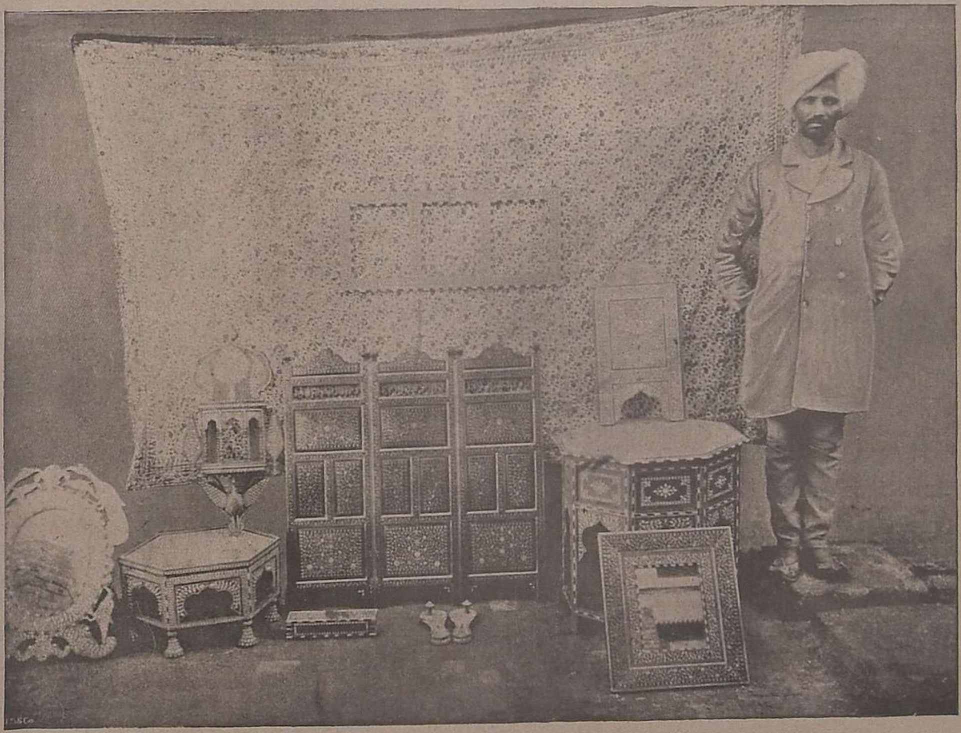
73 to 79. Chúrigar's Tools.



83.—Ivory Carving in the Punjab (Amritsar).
Combs, Knives and *Surmadanis*.

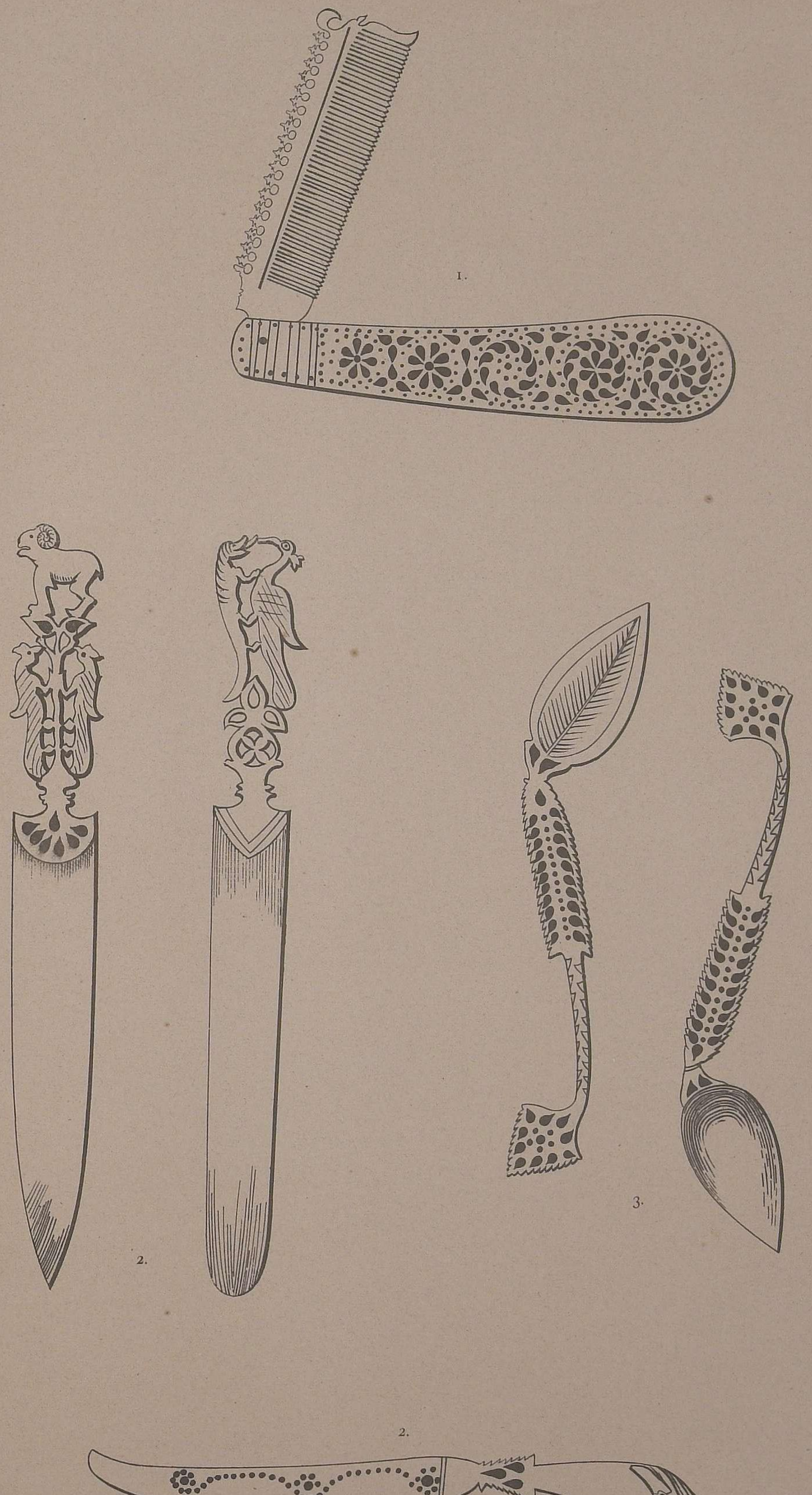
84.—Ivory Carving in the Punjab.
Toys, and Chúrigars at work (Amritsar).





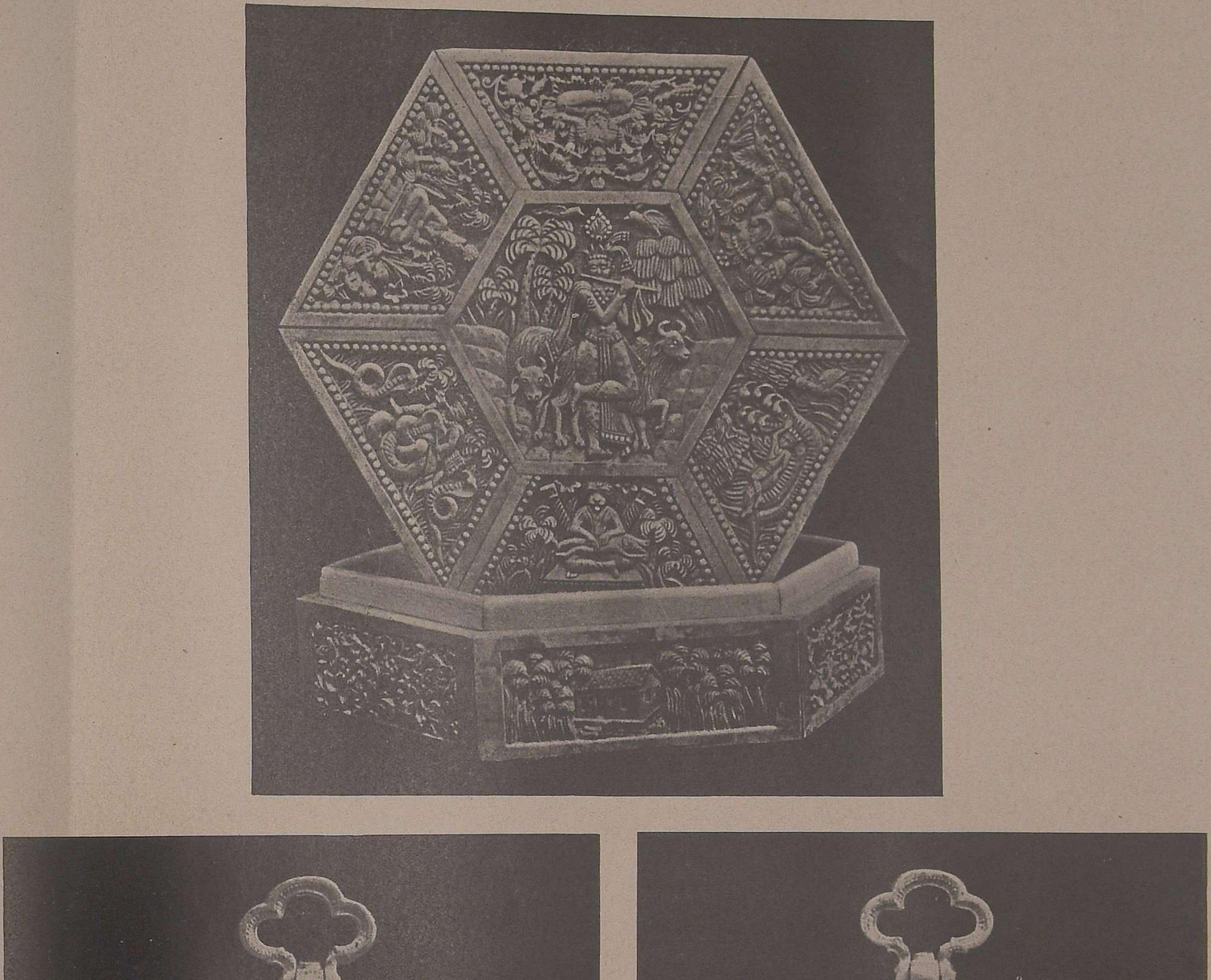
85.—Ivory Carving in the Punjab (Hoshiárpur).

Furniture.



86.—Ivory Carving in the Bombay Presidency.

1. Pocket Comb. 2. Paper Knives. 3. Spoons for adding water to ink.



87.—Ivory Carving in Bombay Presidency (Bhúj).

88.—Burmese Ivory Carving.

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